

DENON

Hi-Fi Component

SERVICE MANUAL

MODEL DN-2000F

DOUBLE CD PLAYER

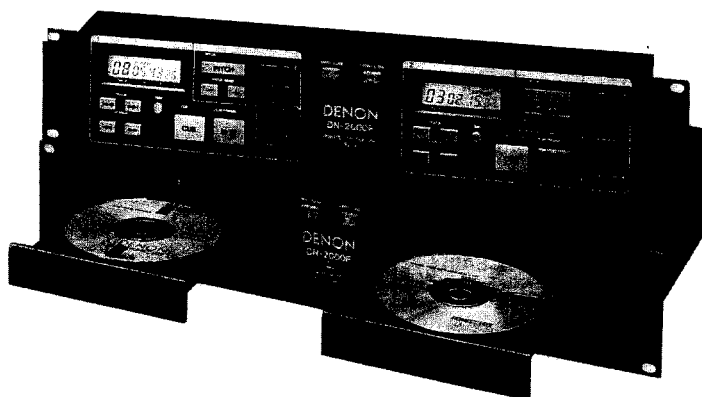


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NIPPON COLUMBIA CO., LTD.

IMPORTANT TO SAFETY

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

1. Handle the power supply cord carefully

Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.

2. Do not open the top cover

In order to prevent electric shock, do not open the top cover. If problems occur, contact your DENON dealer.

3. Do not place anything inside

Do not place metal objects or spill liquid inside the CD player. Electric shock or malfunction may result.

Please, record and retain the Model name and serial number of your set shown on the rating label.

Model No. DN-2000F

Serial No. _____



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT (BRITISH MODEL ONLY)

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral Brown: Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

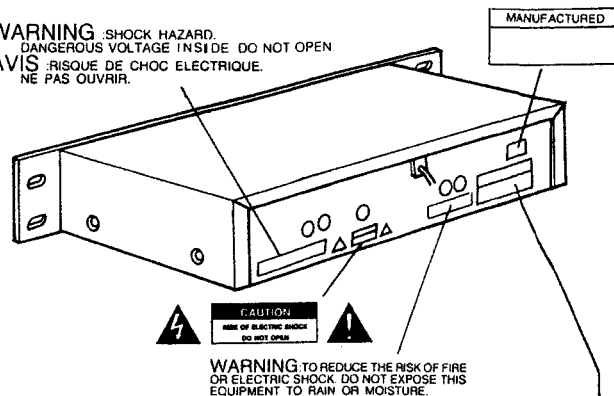
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

NOTE:

This CD player uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5°C (41°F) – 35°C (95°F).

LABELS (for U.S.A. model only)

WARNING SHOCK HAZARD.
DANGEROUS VOLTAGE INSIDE DO NOT OPEN
AVIS RISQUE DE CHOC ELECTRIQUE.
NE PAS OUVRIR.



| CERTIFICATION | | |
|--|----------|---|
| THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE. | | |
| DENON AMERICA INC. 222 NEW ROAD PARSIPPANY, NEW JERSEY 07054 U.S.A. | | |
| MODEL NO. | DN-2000F | DENON® |
| ~120V | 20W | 60Hz |
| SER. NO. | | NIPPON COB. COMBIA CO. LTD. MADE IN JAPAN |

CAUTION:

USE OF CONTROLS OR ADJUSTMENTS OR REFORMATION OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

NOTE:

This unit may cause interference to radio and television reception if you do not operate it in strict accordance with this OPERATING INSTRUCTIONS.

This unit complies with Class B computing device rules in accordance with the specifications in Sub-part J or Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If the unit does cause interference to any radio or television reception, try to reduce it by one or more of the following means:

- Turn the other unit to improve reception
- Move this unit
- Move this unit away from others
- Plug this unit respectively into a different AC outlet

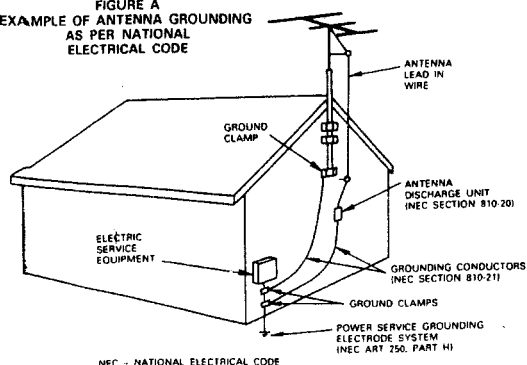
* This is note in accordance with Section 15.838 of the FCC Rules.

SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
14. Power Lines – An outdoor antenna should be located away from power lines.
15. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70–1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
16. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
17. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
18. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
19. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

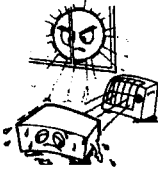






FIGURE A
EXAMPLE OF ANTENNA GROUNDING
AS PER NATIONAL
ELECTRICAL CODE



NEC - NATIONAL ELECTRICAL CODE

**NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GEBRUIKEN/OBSERVERA
OBSERVAÇÕES QUANTO AO USO**

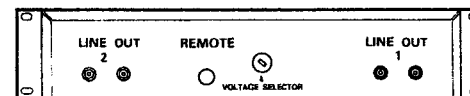
| | | |
|--|--|---|
|  <ul style="list-style-type: none"> • Avoid high temperatures Allow for sufficient heat dispersion when installed on a rack. • Vermeiden Sie hohe Temperaturen Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird. • Eviter des températures élevées Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère. • Evitate di esporre l'unità a temperature alte. • Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio. • Evite altas temperaturas Permita la suficiente dispersión del calor cuando está instalado en la consola. • Vermijd hoge temperaturen Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst. • Undvik höga temperaturer Se till att det finns möjlighet till god värmeavledning vid montering i ett rack. • Evite temperaturas altas Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira. |  <ul style="list-style-type: none"> • Keep the set free from moisture, water, and dust. • Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern. • Protéger l'appareil contre l'humidité, l'eau et la poussière. • Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere. • Mantenga el equipo libre de humedad, agua y polvo. • Laat geen vochtigheid, water of stof in het apparaat binnendringen. • Utsätt inte apparaten för fukt, vatten och damm. • Mantenha o aparelho livre de qualquer umidade, água ou poeira. |  <ul style="list-style-type: none"> • Do not let foreign objects in the set. • Keine fremden Gegenstände in das Gerät kommen lassen. • Ne pas laisser des objets étrangers dans l'appareil. • E' importante che nessun oggetto è inserito all'interno dell'unità. • No deje objetos extraños dentro del equipo. • Laat geen vreemde voorwerpen in dit apparaat vallen. • Se till att främmande föremål inte tränger in i apparaten. • Não deixe objetos estranhos no aparelho. |
|  <ul style="list-style-type: none"> • Handle the power cord carefully. Hold the plug when unplugging the cord. • Gehen Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen. • Manipuler le cordon d'alimentation avec précaution. Tenir le prise lors du débranchement du cordon. • Maneggiare il filo di alimentazione con cura. Agitare per la spina quando scollegate il cavo dalla presa. • Maneje el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón de energía. • Hanterat het snoer voorzichtig. Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld. • Hantera nätkabeln varsamt. Håll i kabeln när den kopplas från el-uttaget. • Manuseie com cuidado o fio condutor de energia. |  <ul style="list-style-type: none"> • Unplug the power cord when not using the set for long periods of time. • Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker. • Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes. • Disinnestare il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo. • Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo. • Neem altijd het snoer uit het stopcontact wanneer het apparaat gedurende een lange periode niet wordt gebruikt. • Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid. • Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período. |  <ul style="list-style-type: none"> • Do not let insecticides, benzene, and thinner come in contact with the set. • Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen. • Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil. • Assicuratevi che l'unità non venga in contatto con insetticidi, benzolo o solventi. • No permita el contacto de insecticidas, gasolina y diluyentes con el equipo. • Laat geen insectenverdelgende middelen, benzine of verfvredunder met dit apparaat in contact komen. • Se till att inte insektsmedel på spraybruk, bensin och thinner kommer i kontakt med apparatens hölje. • Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho. |
|  <ul style="list-style-type: none"> • Handle the power cord carefully. Hold the plug when unplugging the cord. • Gehen Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen. • Manipuler le cordon d'alimentation avec précaution. Tenir le prise lors du débranchement du cordon. • Maneggiare il filo di alimentazione con cura. Agitare per la spina quando scollegate il cavo dalla presa. • Maneje el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón de energía. • Hanterat het snoer voorzichtig. Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld. • Hantera nätkabeln varsamt. Håll i kabeln när den kopplas från el-uttaget. • Manuseie com cuidado o fio condutor de energia. |  <p>(For sets with ventilation holes)</p> <ul style="list-style-type: none"> • Do not obstruct the ventilation holes. • Die Belüftungöffnungen dürfen nicht verdeckt werden. • Ne pas obstruer les trous d'aération. • Non coprire i fori di ventilazione. • No obstruya los orificios de ventilación. • De ventilatieopeningen mogen niet worden beblokkeerd. • Topp inte till ventilationsöppningarna. • Não obstrua os orifícios de ventilação. |  <ul style="list-style-type: none"> • Never disassemble or modify the set in any way. • Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern. • Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre. • Non smontare mai, né modificare l'unità in nessun modo. • Nunca desarme o modifique el equipo de ninguna manera. • Nooit dit apparaat demonteren of op andere wijze modificeren. • Ta inte isär apparaten och försök inte bygga om den. • Nunca desmonte ou modifique o aparelho de alguma forma. |

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• Line Voltage Selection (for multiple voltage model only)

- * The desired voltage may be set with the VOLTAGE SELECTOR knob on the rear panel, using a screwdriver.
- * Do not twist the VOLTAGE SELECTOR knob with excessive force as this may cause damage.
- * If the VOLTAGE SELECTOR knob does not turn smoothly, please contact a qualified serviceman.



CAUTION:

Whenever the power switch is in the OFF state, the apparatus is still connected on AC line voltage. Please be sure to unplug the cord when you leave home for, say, a vacation.

Be sure turn on POWER switch after a Remote cable of RC-35 is connected to the Player unit, otherwise, the apparatus may not work correctly.

1 GENERAL

Main Features

The DN-2000F is a double CD player which provides excellent performance as well as a variety of functions ideal for DJ mixing. The unit can be mounted in a standard 19-inch rack.

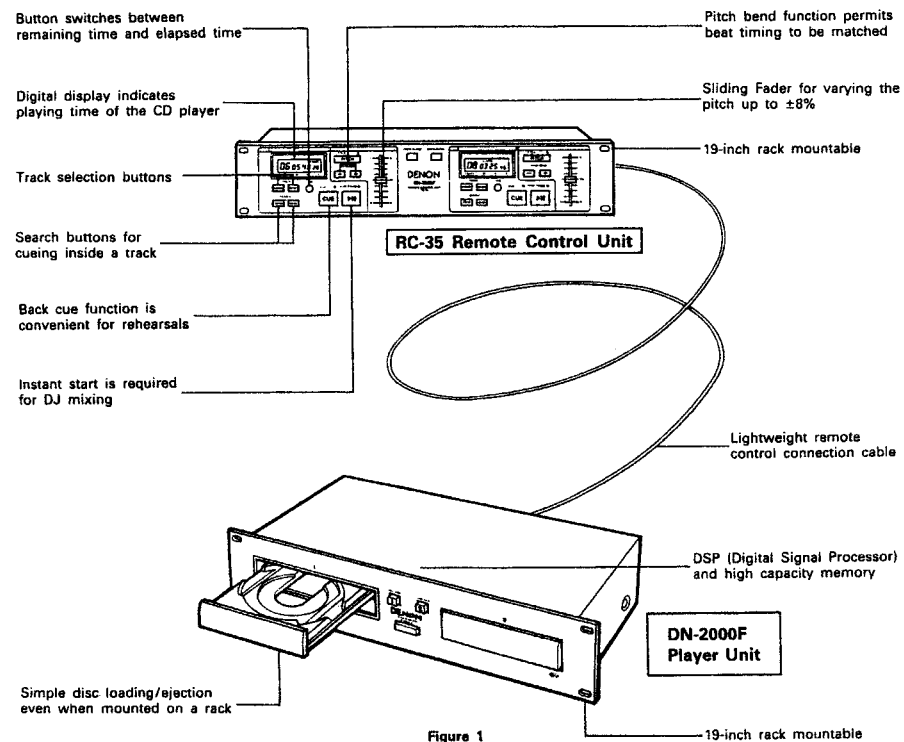


Figure 1

2 PREPARATION

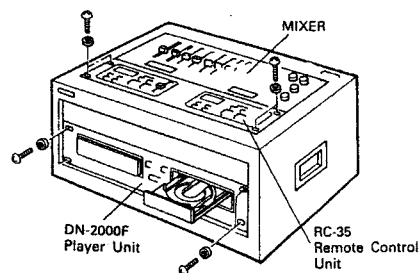
(1) Check the Contents

Check that the carton contains the following items in addition to the main unit.

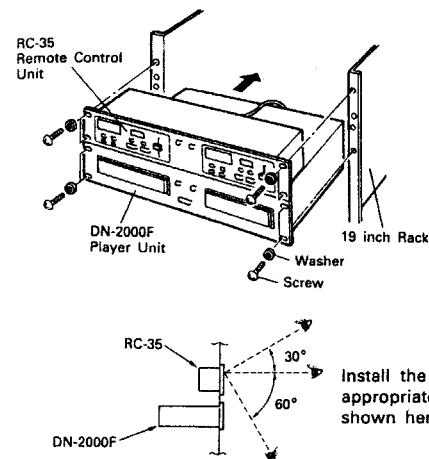
- ① Operating instructions 1
- ② Connection cords for signal output (RCA) 2
- ③ Remote control unit (RC-35) 1
- ④ Remote control connection cable 1
- ⑤ Connecting brackets with screws 1 pair

(2) Install the Units

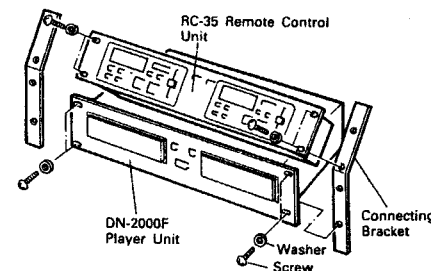
- ① Mount the units onto the DJ console with 19" EIA rack rails. (Example-1)



- ② Mount the units onto the rack with 19" EIA rack rails. (Example-2)



- ③ To operate the units on the desk top, use the connecting brackets provided.



(3) Connections

Typical connections with a mixer is illustrated below. Please use it for reference.

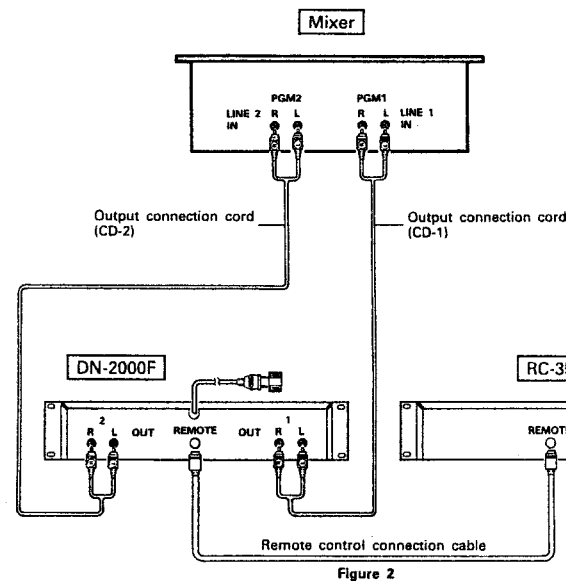


Figure 2

- Connect the connection cords to the line inputs of your mixer.
- The connection cords and the remote control connection cable are supplied with the main unit.
- Be sure to use the remote control connection cable which has been supplied. Use of another cable type might cause damage.

3 DESCRIPTION OF THE FUNCTIONS

Below is a description of the names of the various parts and the functions of the main unit.
(1) Names, Dimensions, and Functions of the Parts of the Main Unit

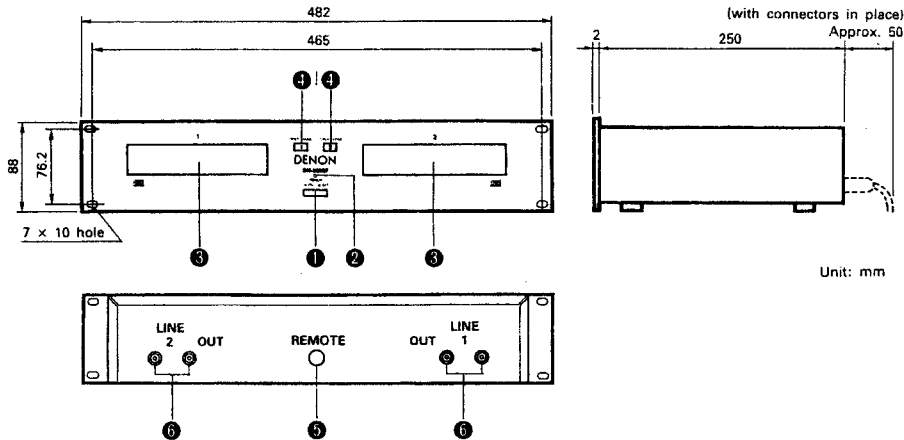


Figure 3

- 1 POWER (Power Switch)**
Switches the power of the main unit and the remote control on and off.
Power indicator 2 is lit when the power is on.
- 2 POWER (Power Indicator)**
Lights up red when power switch 1 is on.
- 3 Disc Holder**
The disc is placed on this holder. Pressing the disc holder open/close buttons 4 will open and close each of the holders.
When loading the CD, place it securely in the disc holder.
- 4 OPEN/CLOSE (Disc Holder Open/Close Button)**
Press to load or eject the disc. Each press will open or close the disc holder 3.
The remote control is also equipped with similar buttons.
- 5 REMOTE (Remote Control Connector)**
This connector accepts the cable which connects to the remote control unit RC-35. Insert the plug securely as far as it will advance.
- 6 LINE OUT (Output Jacks)**
The audio from each CD player is output from these jacks.
Connect to the line input of the mixer.
Red is for the right channel and white, the left channel.

(2) Names, Dimensions, and Functions of the Parts of the Remote Control Unit

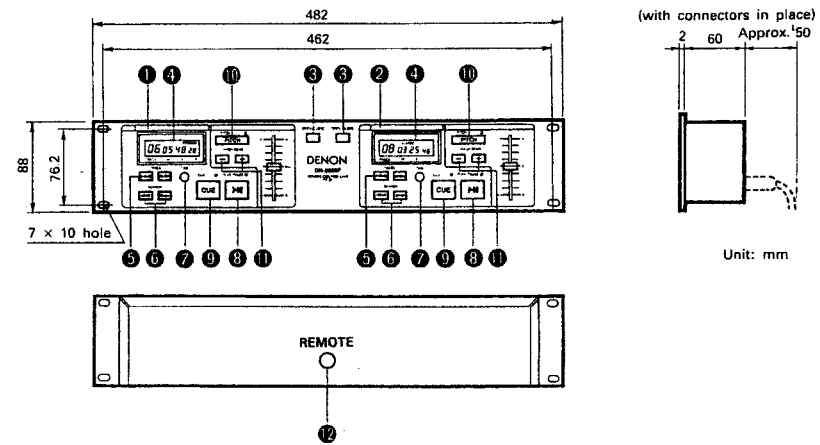


Figure 4

- 1 CD-1 Remote Control Operation Panel**
This operation panel remotely controls the main unit CD-1.
- 2 CD-2 Remote Control Operation Panel**
This operation panel remotely controls the main unit CD-2.
- 3 OPEN/CLOSE (Disc Holder Open/Close Button)**
Press to load or eject the disc. Each press will open or close the disc holder 3.
- 4 Time Display**
This display shows the track number, time (minutes, seconds and frames), and elapsed or remaining time. Each frame represents 1/75 of a second.
- 5 TRACK (Track Button)**
This button selects the track to be played.
- 6 SEARCH (Search Buttons)**
These buttons are used to accurately change the positions where disc play will start.
- 7 TIME (Time Button)**
The TIME button switches the time display between elapsed time and remaining time. ELAPSE or REMAIN will be shown on the display.
- 8 PLAY/PAUSE (Play/Pause Button)**
Each press of the PLAY/PAUSE button causes the operation to change from play to pause or from pause back to play.
- 9 CUE (Cue Button)**
Pressing the CUE button during play provides a return to the position at which play was started. Alternately pressing the PLAY/PAUSE button and the CUE button allows the CD to be played from the same position any number of times.
The red CUE LED will blink from the time the CUE button is pressed until the CD has reset to the position at which play was started. Steady lighting of this LED indicates the ready condition.
- 10 PITCH (Pitch Button)**
This button changes the play speed.
The pitch can be changed up to $\pm 8\%$ by pressing the PITCH button so the green PITCH LED is lit, then moving the sliding fader.
The pitch will not be changed if the green PITCH LED is off.
- 11 PITCH BEND (Pitch Bend Button)**
When each of the two CD players are playing a CD, the pitch bend function allows the positioning of the bass beats to be matched after the pitch has been matched. The pitch will automatically rise while the + button is pressed and return to the original pitch when the button is released.
The pitch will drop while the - button is pressed. By changing the pitch in this way, the positioning of the beats can be matched.
- 12 REMOTE (Remote Control Connector)**
This connector accepts the cable which connects to the main unit. Insert the plug securely as possible.

4 BASIC OPERATION

(1) Loading and Ejecting the Disc

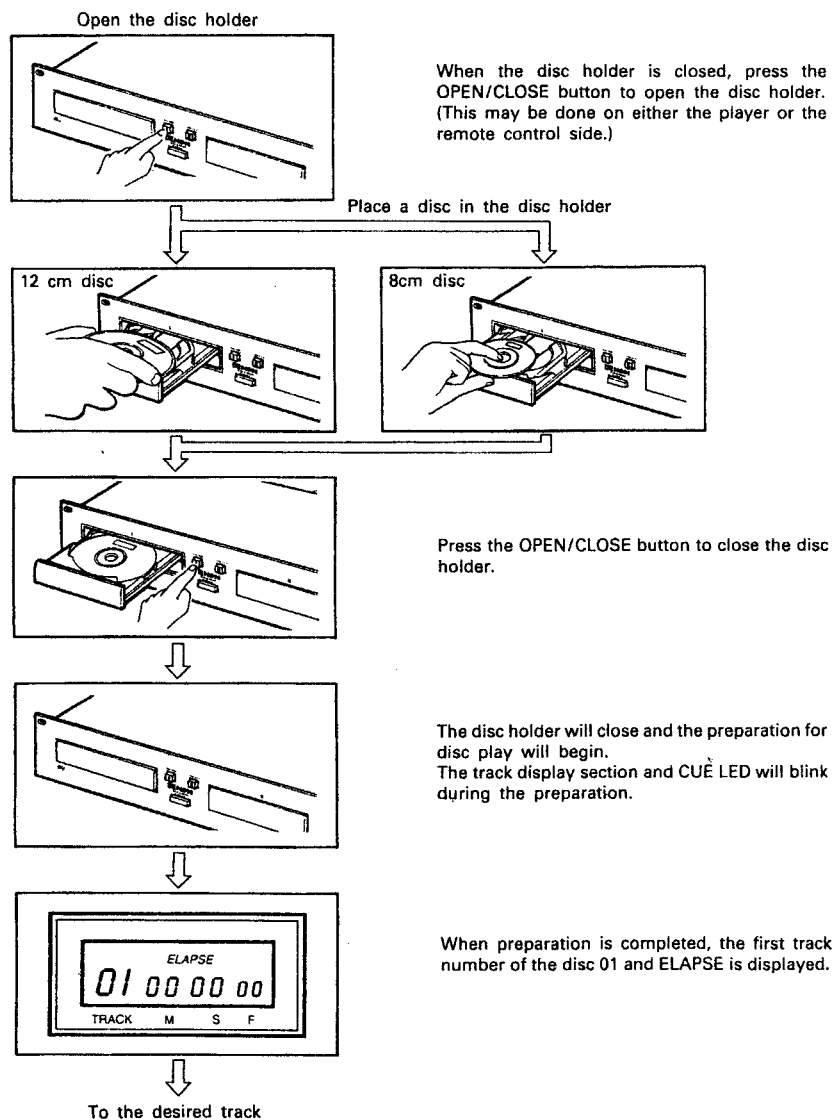


Figure 5

(2) Selecting Tracks and play mode

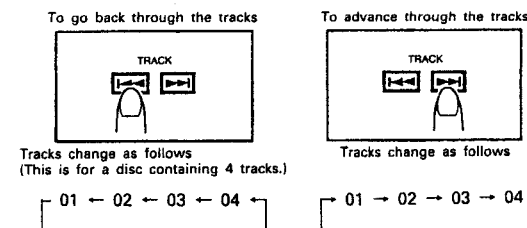



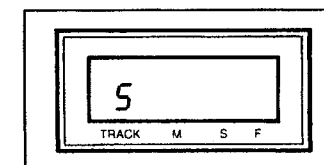
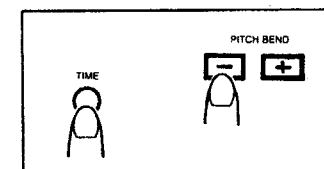
Figure 6


Each press of the TRACK button changes 1 track. Continuing to hold the TRACK button down provides an automatic change at a higher speed which is convenient for discs that contain many tracks. During the track selection operation, the track indication of the display will blink and the M S F indication will be off.

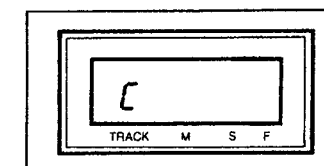
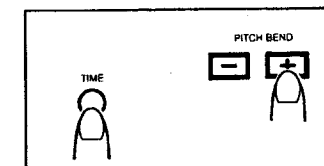
When a new track is selected during play, after the selection operation is completed, play will immediately start from the beginning of the newly selected track.

The track number can be selected before loading a disc on the player unit. You can select a track to play on the controller, then load a disc. The player will cue up to your selected track automatically.

- SINGLE/CONTINUE play mode selection**
- Press the TIME and  buttons of PITCH BEND simultaneously to set the player for SINGLE track playback mode, "S" is displayed on TRACK section. During single playback mode, the player stops after a specified track is played back.



- Press the TIME and  button of PITCH BEND simultaneously to set the player for continuous playback mode, "C" is displayed on TRACK section. During continuous playback mode, the player continue playback until completion of playback of the last track on the disc.
- When the power switch to ON, the player automatically set to CONTINUE playback mode.



(3) Starting Play

Pressing the PLAY/PAUSE button during the pause condition or after the completion of back cue will start disc play.

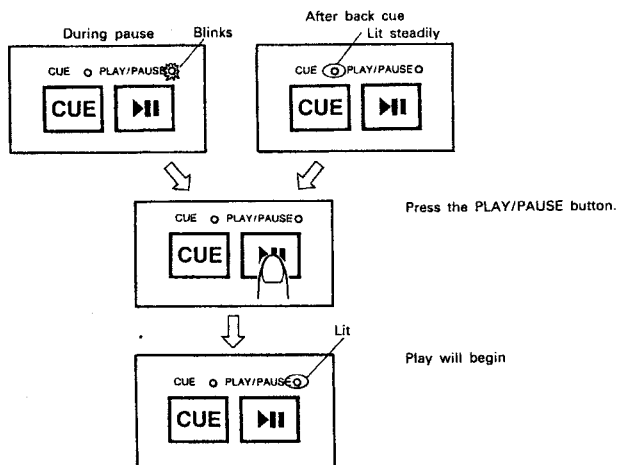


Figure 7

(4) Stopping Play

There are two ways of stopping play. One uses the pause function and the other the back cue function.

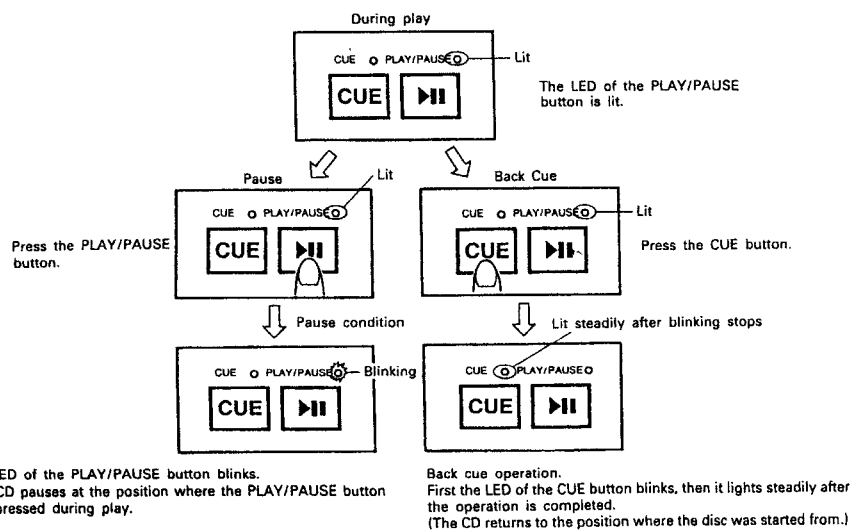


Figure 8

(5) Description of the PLAY/PAUSE, and CUE Operations

- Each press of the PLAY/PAUSE button causes the operation to change from play to pause or from pause back to play.
- The play operation of this CD player is performed via DSP (Digital Signal Processor) and memory, so the audio starts instantly after the PLAY/PAUSE button is pressed.
- Pressing the CUE button during disc play resets the CD to the position at which play was started. (This is called the back cue function.)

The steps through which disc play is performed when the PLAY/PAUSE and CUE buttons are pressed are described with the aid of the following illustrations in Figures 9 through 11.

PLAY and PAUSE

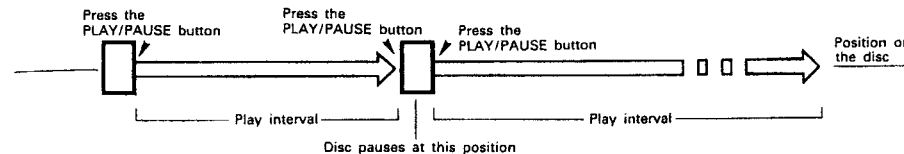


Figure 9

Pressing the PLAY/PAUSE button starts the disc play, the advancement of which is illustrated by the arrows of Figure 9. Pressing the PLAY/PAUSE button again during disc play causes the play operation to pause, and pressing this button once more causes the disc to be played again.

PLAY and CUE

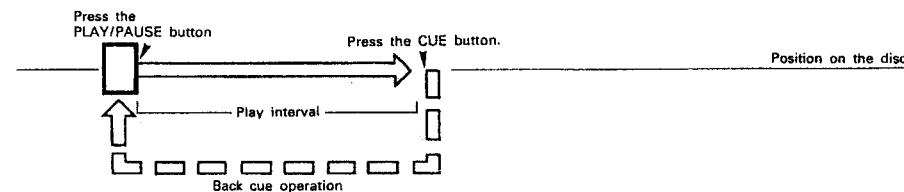


Figure 10

Pressing the PLAY/PAUSE button starts the disc. Pressing the CUE button will reset the disc to the position where play was started. By alternately pressing the PLAY/PAUSE button and the CUE button, the disc may be played from the same position any number of times. This function is called back cue.

PLAY, PAUSE, and CUE

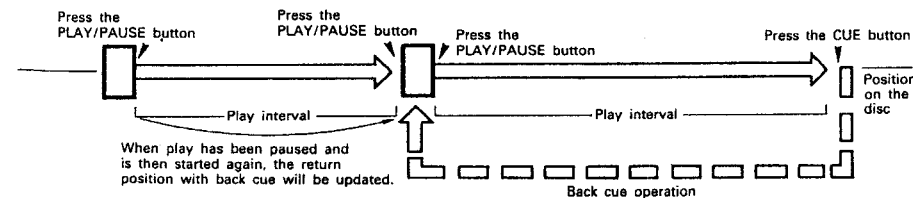
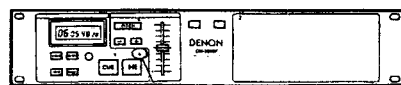


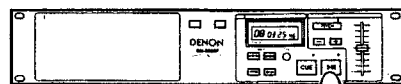
Figure 11

(6) Matching the Beats Per Minute

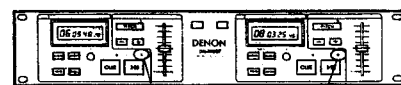
Match the pitch by monitoring the music of both CD-1 and CD-2 by ear. When the tempo of the music of the selected CD player is slow compared to the tempo of the other player, move the slider to the + side and match the tempo. When fast, move to the - side. The following description is for the case of matching the pitch of CD-2 to the pitch of the music being played on CD-1.



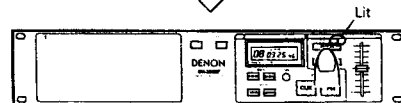
CD-1 is playing.



Press PLAY/PAUSE to start CD-2. The LED of the PLAY/PAUSE button will light.



Both CD players are playing discs. Listen to CD-2 in your headphones.



Press the PITCH button of CD-2. The green LED of the PITCH button will light.

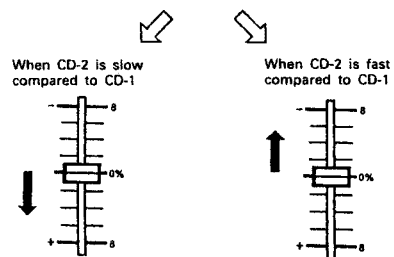


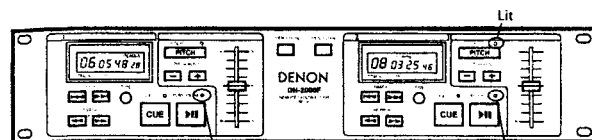
Figure 12

(7) Beat Matching Using Pitch Bend

A description of the procedure for matching the beat of CD-1 and CD-2 using the PITCH BEND button is given below.

This description is for the case of matching the beat of CD-2 to the beat of the music being played on CD-1.

After Matching the BPM's According to Section (6)



BPM's (Beat Per Minute) are the same, however the bass beats are not matched.

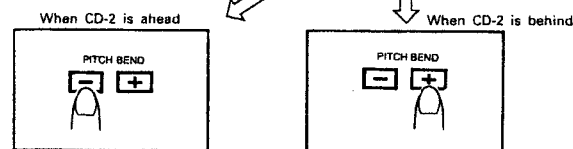
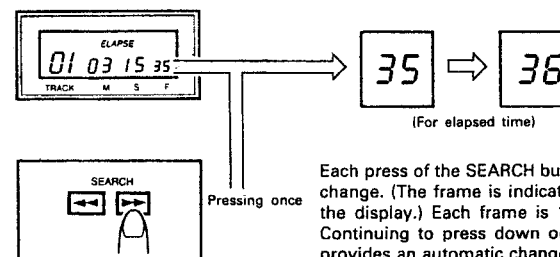


Figure 13

The pitch changes automatically while the **+** or **-** button is being pressed. Releasing the button results in a return to the original pitch. (So the BPM's are once again the same.)

(8) Moving the Play Start Position

When a track is selected and the PLAY/PAUSE button is pressed, the play operation will start from the beginning of that track. However, when you want play to start from a different position, use the following procedure to find that position.



Each press of the SEARCH button causes 1 frame to change. (The frame is indicated at the F portion of the display.) Each frame is 1/75th of a second. Continuing to press down on the SEARCH button provides an automatic change of frames, the speed of which increases while the button is pressed.

Figure 14

To Start Playback from the Middle of a track.

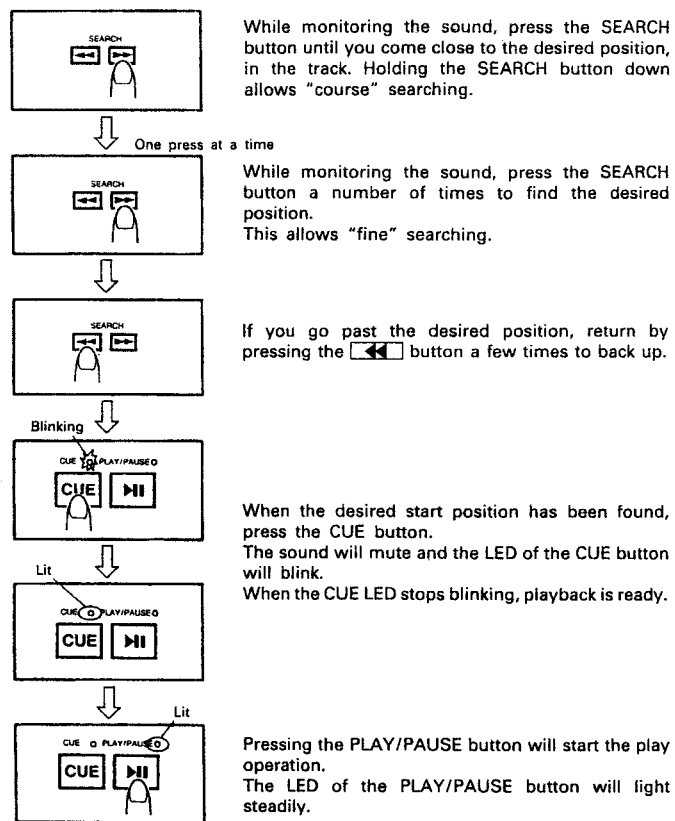
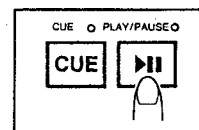


Figure 15

(9) Checking the Play Start Position

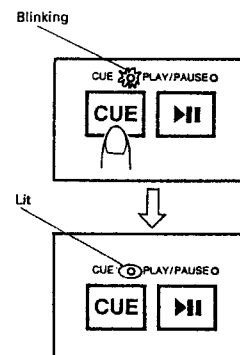
After selecting the track or after changing the play start position with the SEARCH button, use the following procedure to repeatedly check the position at which play will start.



Press the PLAY/PAUSE button. Check that play will start from the desired position.

NOTE:

Once you have set up a new start position within a track, do not press the PAUSE or SEARCH buttons. Pressing these buttons will change your start position.



Press the CUE button after checking the start position.

The player will return to the position where play was started.

When the CUE LED stops blinking, it is ready to start again.

If the play start position is not to your liking, use the search function to change the position.

Figure 16

5 EXAMPLE OF MIXING WITH THE DN-2000F

A description of an actual example of mixing using the system illustrated in Figure 2 is given below. After playing back a track on CD-1, and after matching the pitch of CD-2, use cross fader on your mixer to fade from CD-1 to CD-2.

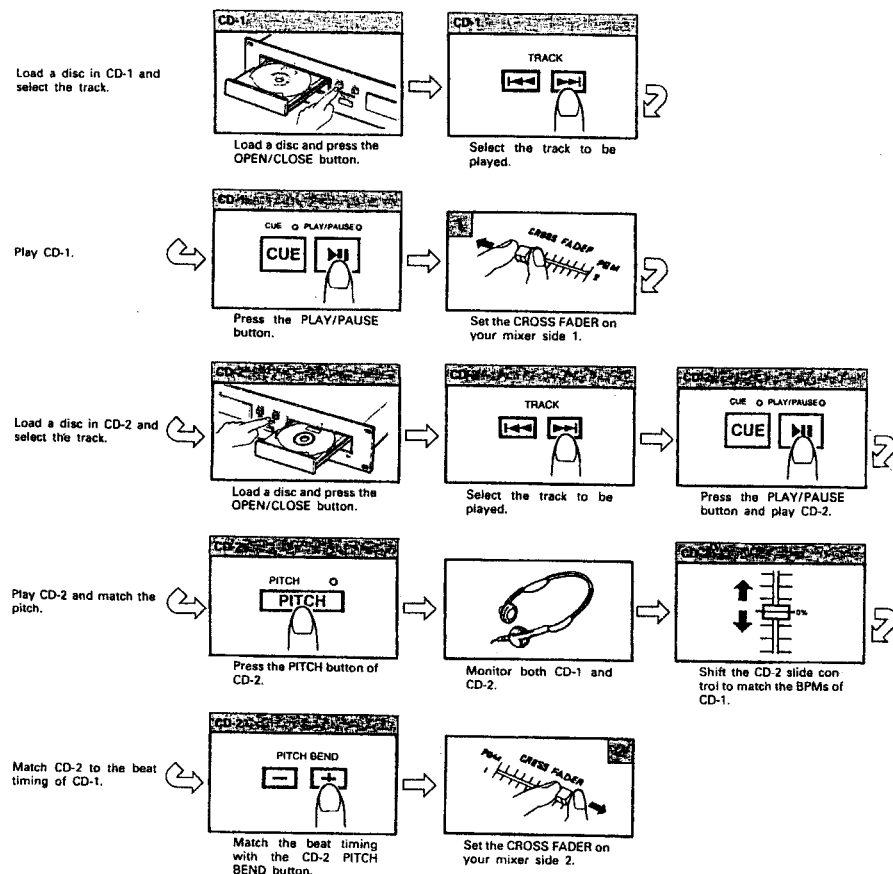


Figure 17

6 BEFORE SWITCHING OFF THE POWER

When you have finished using the CD player, before switching off the power be sure that the disc holder has been closed with the OPEN/CLOSE button.

CAUTION:

Do not forcibly close the disc holder when the power is off. It may damage the unit when it is transported.

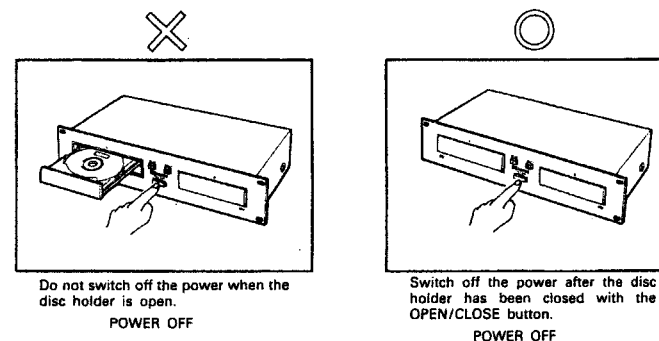


Figure 18

7 COMPACT DISCS

1. Precautions on handling compact discs

- Do not allow fingerprints, oil or dust to get on the surface of the disc. If the disc is dirty, wipe it off with a soft dry cloth. We recommend using DENON's AMC-20/21 CD CLEANER.
- Do not use benzene, thinner, water, record spray, electrostatic-proof chemicals, or silicone-treated cloths to clean discs.
- Always handle discs carefully to prevent damaging the surface; in particular when removing a disc from its case or returning it.
- Do not bend the disc.
- Do not apply heat.
- Do not enlarge the hole in the center of the disc.
- Do not write on the label (printed side) with a hard-tipped implement such as a pencil or ball point pen.
- Condensation will form if a disc is brought into a warm area from a colder one, such as outdoors in winter. Do not attempt to dry the disc with a hair dryer, etc.

2. Precaution on storage

- After playing a disc, always unload it from the player.
- Always store the disc in the jewel case to protect from dirt or damage.
- Do not place discs in the following areas:
 - Areas exposed to direct sunlight for a considerable time.
 - Areas subject to accumulation of dust or high humidity.
 - Areas affected by heat from indoor heaters, etc.

8 SPECIFICATIONS

GENERAL

| | |
|------------------------------|---|
| Type: | Twin mechanism Compact Disc player with wired remote control. |
| Disc type: | Standard Compact Discs (12 cm and 8 cm) |
| Dimensions: | Player unit; 482 (W) × 88 (H) × 252 (D) mm Remote control unit; 482 (W) × 88 (H) × 62 (D) mm |
| Installation: | 19-inch rack mountable Player unit; 3U Remote control unit; 3U |
| Weight: | Player unit; 5.5 kg Remote control unit; 1.5 kg |
| Power supply: | 120 V AC ±10%, 60 Hz (for U.S.A. & Canada models) 230 V AC ±10%, 50/60 Hz (for European model) 240 V AC ±10%, 50/60 Hz (for U.K. model) 120/220/240 V AC ±10%, 50/60 Hz (for multi voltage version) |
| Power consumption: | 26 W |
| Environment: | Temperature; 5 to 35°C Humidity; 25 to 85% (without condensation) Storage Temperature; -20 to 60°C |
| Standard accessories: | Pin-connected cord; L/R 2 pairs Remote connecting cable; 1 pc. |

AUDIO SECTION

| | |
|-----------------------------------|-----------------------|
| Quantization: | 18-bit linear/channel |
| Sampling frequency: | 44.1 kHz |
| Oversampling rate: | 8 times |
| Frequency response: | 20 to 20,000 Hz |
| Total harmonic distortion: | 0.006 % |
| Signal-to-noise ratio: | 103 dB |
| Dynamic range: | 98 dB |
| Channel separation: | 96 dB |
| Output level: | 2.0 V |
| Load impedance: | 10 Kohm or more |

FUNCTIONS

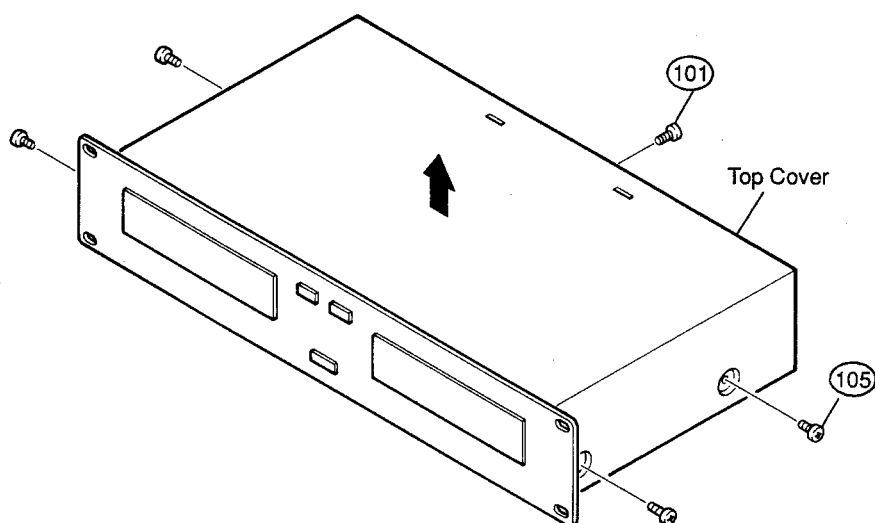
| | |
|--------------------------|--|
| Track selection: | 1 to 99 tracks |
| Fast search: | 1 frame step and continuous search |
| Automatic cueing: | Beginning of music Back cueing to cued point |
| Instant start: | Within 0.03 sec |
| Variable pitch: | ±8% Slider with resume switch |
| Pitch bend: | ±8% max. |
| Display: | Track number, Remaining time or Elapsed time in Min. Sec. and Frame |

* Specifications and design are subject to change without notice for purpose of improvement.

DISASSEMBLY

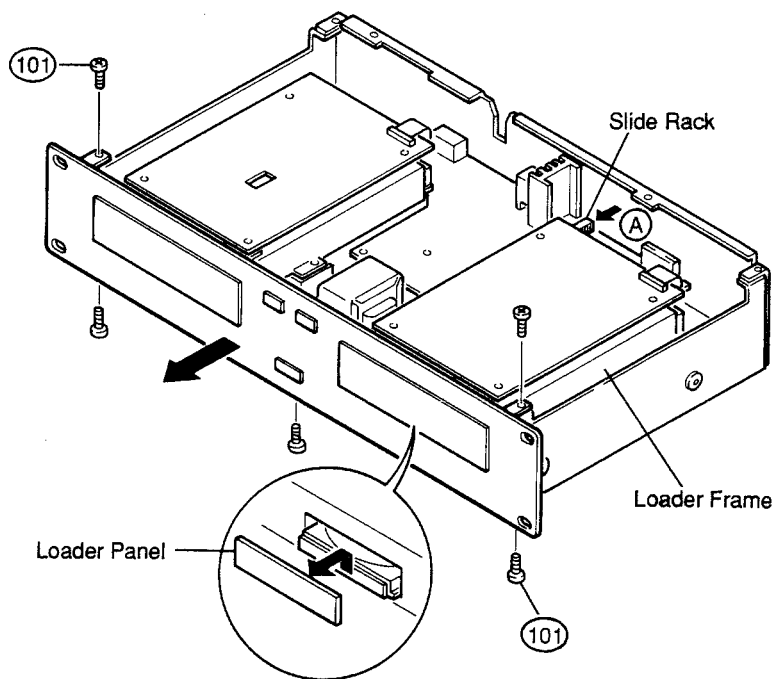
● TOP COVER

1. Remove 4 screws (105) on both sides, and 1 screw (101) on rear side.
2. Pull up TOP COVER.



● FRONT PANEL

1. LOADER FRAME comes out when SLIDE RACK (A) of mechanism unit is pushed.
2. Pull up LOADER PANEL while pulling it towards front.
3. Remove 2 upper screws (101) and 3 lower screws (101).
4. Detach FRONT PANEL.



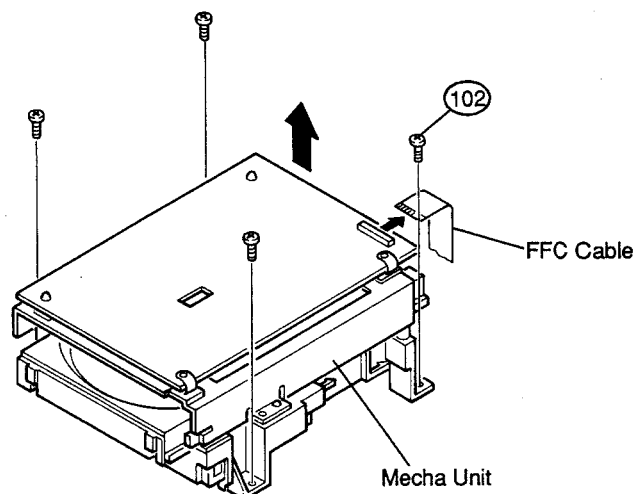
● MECHANISM UNIT

1. Disconnect FFC cable.
2. Remove 4 screws (102).

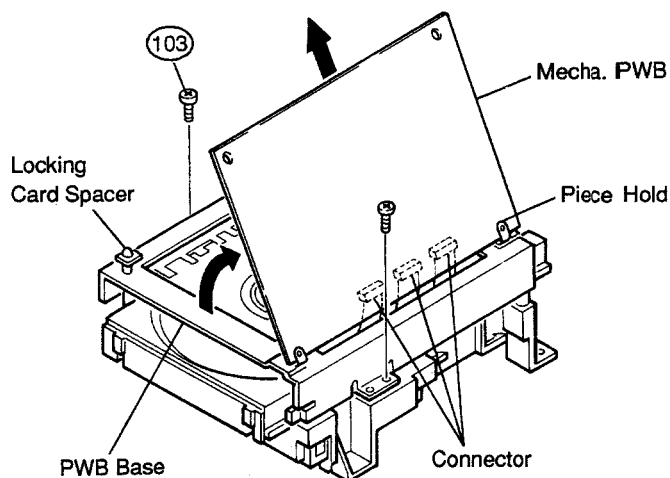
Note : ● Do not pull out aslant to prevent FFC cable damage.

- Do not fail to pull AC cord from wall outlet before disconnect the FFC cable .

IF AC cord is remained plugged into wall outlet, power is kept supplied in the unit, which may cause danger.



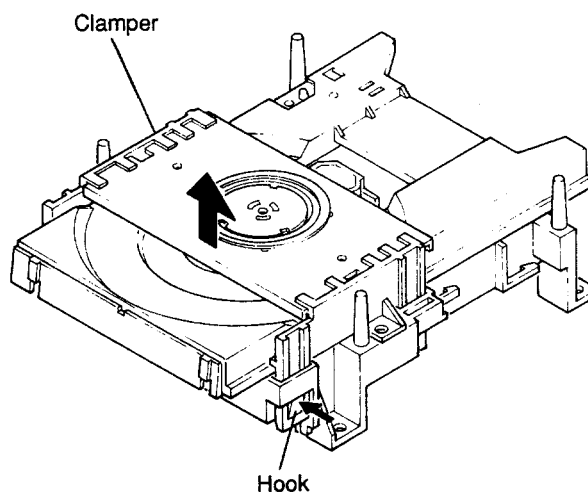
● MECHA. PWB and PWB BASE



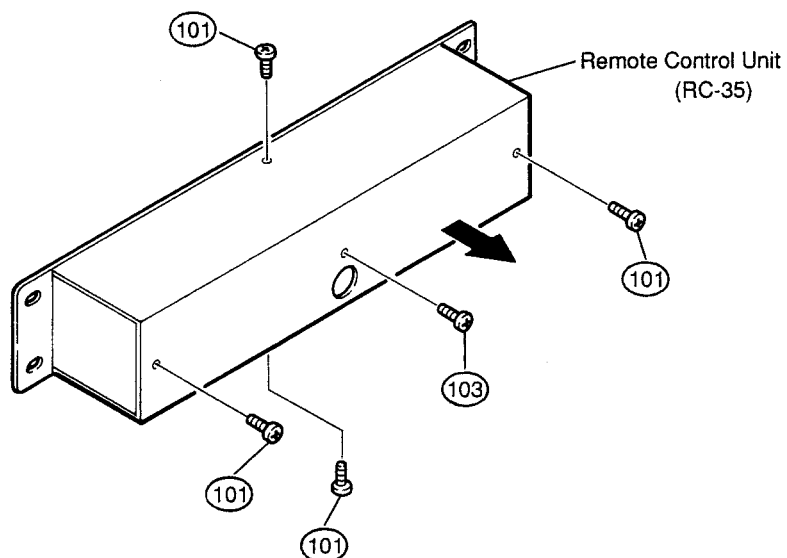
1. Unlock Locking Card Spacer at two places.
2. Rotate Mecha.PWB upwards (approx. 45°), and take off from Piece Hold.
3. Remove 2 screws (103) on both sides, then PWB Base is detachable.

● CLAMPER

Pull clumper and undo 4 hooks.

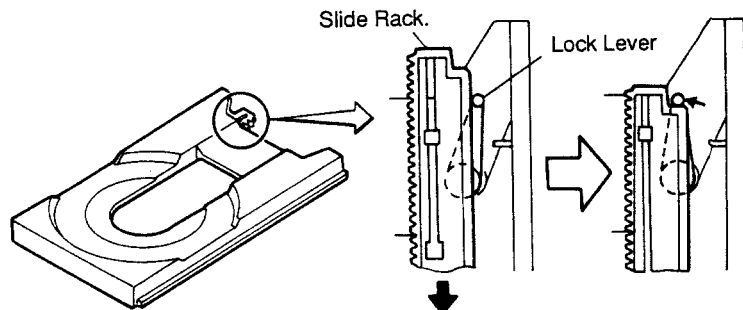
**● COVER (REMOTE CONTROL UNIT)**

1. Remove 5 screws (1 (103) and 4 (101)).

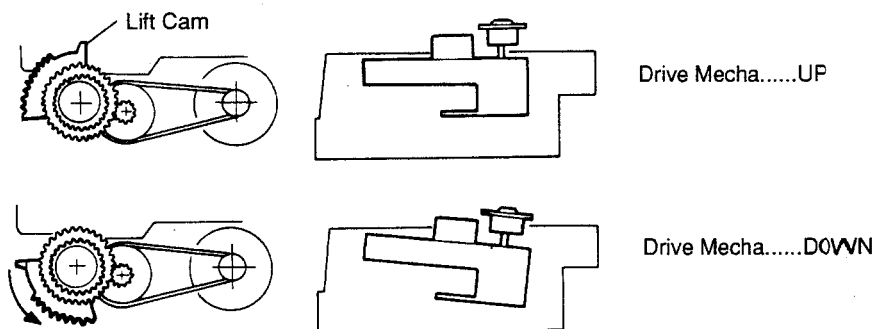


LOADER FRAME ASSEMBLING

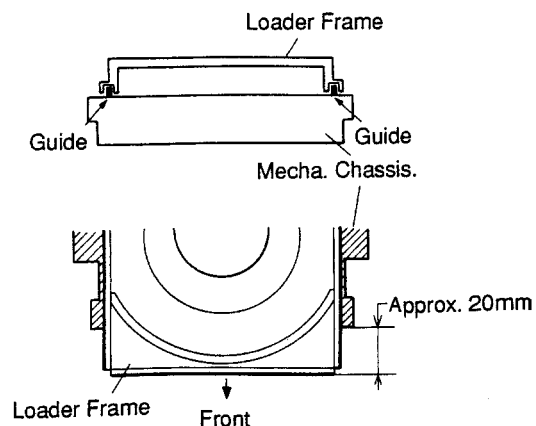
1. Slide the slide rack located inner side of the loader frame, and set the lock lever as shown in the below figure.



2. Rotate the gear portion of lift cam counterclockwise by finger until it comes stopper part. At this time, confirm the drive mechanism that is placed in lowered position.

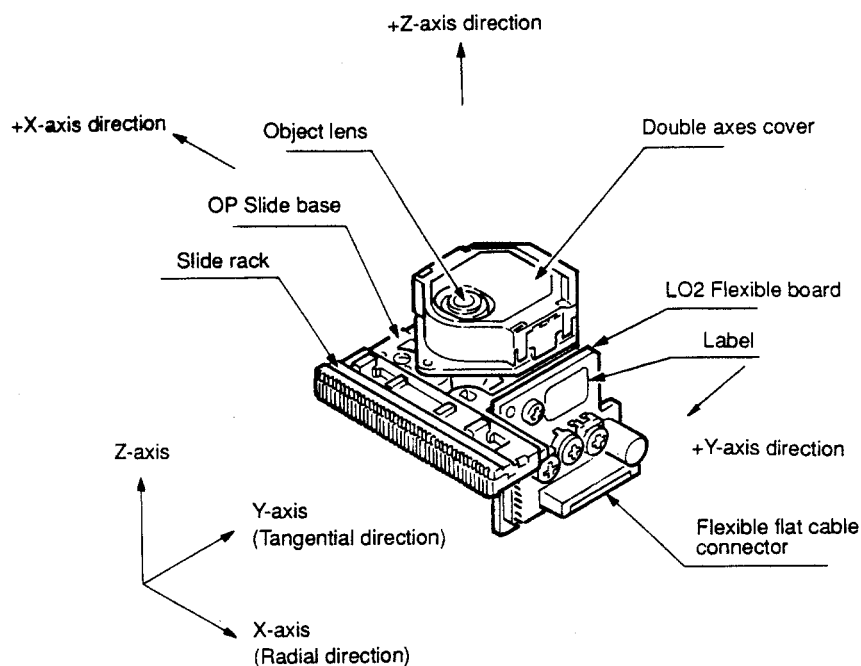


3. Fit the guide of mechanism chassis and the ditch of loader frame and put the loader frame on the mechanism chassis. At this time, make sure that the front surface of the loader frame is set at 20mm extruded position from the front surface of mechanism chassis.

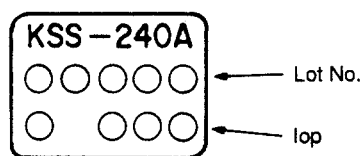


4. Insert the clamber frame to the mechanism chassis until it locks.

NOTE FOR HANDLING OF LASER PICK-UP DESCRIPTION OF THE COMPONENTS



Label



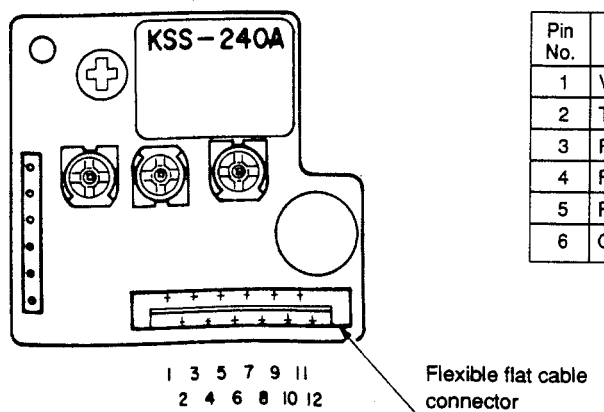
year (last figure)
day month | quality control No.
○ ○ ○ ○

but Oct. Nov. and Dec. are expressed by alphabetical letters of X, Y and Z.

10 1 10⁻¹
quality control ○ ○ ○
LD drive current

The expressed unit is by mA, with omission of the decimal point as for example, 56.5mA will be expressed as 565, but the head of English letter means the control in the manufacturing plant.

PIN CONNECTOR



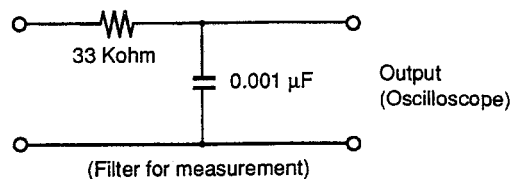
| Pin No. | Description | Input/Output | Pin No. | Description | Input/Output |
|---------|--------------------|--------------|---------|---------------------|--------------|
| 1 | VC (+2.5v) | OUT | 7 | Vcc (+5V) | IN |
| 2 | TE (TRK ER signal) | OUT | 8 | LDC (LD Control) | IN |
| 3 | FE (FCS ER signal) | OUT | 9 | FCS + (Double axes) | IN |
| 4 | FZC (FZC signal) | OUT | 10 | TRK + (Double axes) | IN |
| 5 | RF (RF signal) | OUT | 11 | TRK - (Double axes) | IN |
| 6 | GND | IN | 12 | FCS - (Double axes) | IN |

SERVO ADJUSTMENT

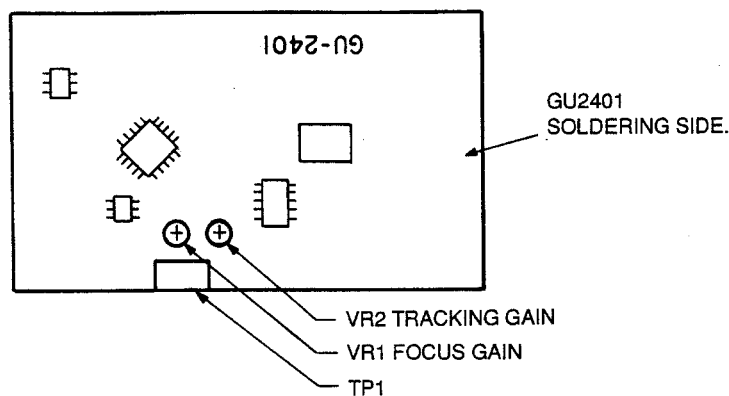
NECESSARY EQUIPMENTS FOR ADJUSTMENT

1. Dual trace oscilloscope
2. Reference disc CA1094
3. Oscillator (10Hz ~ 10kHz, 0 ~ 3 Vp-p)
4. Frequency Counter
5. Filter for measurement

Input
(GU-2401)



LOCATION



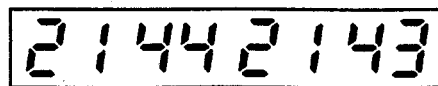
Adjustment Procedure

Be sure to perform servo adjustments and confirmations by this order of adjustment procedure.

1. Actuating the Service Program.
2. Confirmation of Tracking Offset.
3. Adjustment of Focus Gain.
4. Adjustment of Tracking Gain.
5. Confirmation of HF Waveform.





1. Actuating the Servo Program

- ① Turn the power off.
- ② While simultaneously pushing the center blue buttons (1,2) of remote control (RC-35), turn the power on.
- ③ As the tray opens, set the adjustment disc (CA-1094).
- ④ Displayed indication on the remote control (RC-35) is version number of microcomputer program 4 figures on the left are program version of remote control, and 4 figures on the right are program version of main body mechanism.



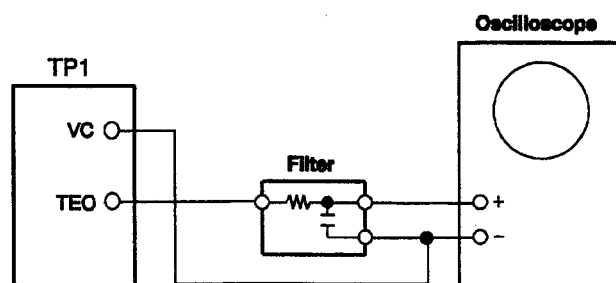
Program Version of
Remote Control (RC-35)


Program Version of
Main Body Mechanism

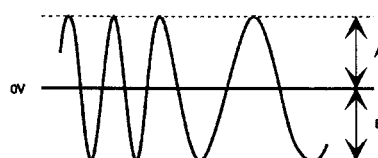
- ⑤ Push the TRACK  button of the mechanism intended to adjust for one time. After confirm that  is displayed, push the PLAY button. Then, the Tray will close.
- ⑥ Push the TRACK  button ( is indicated), then push the PLAY button.

2. Confirmation of Tracking Offset

① Connections



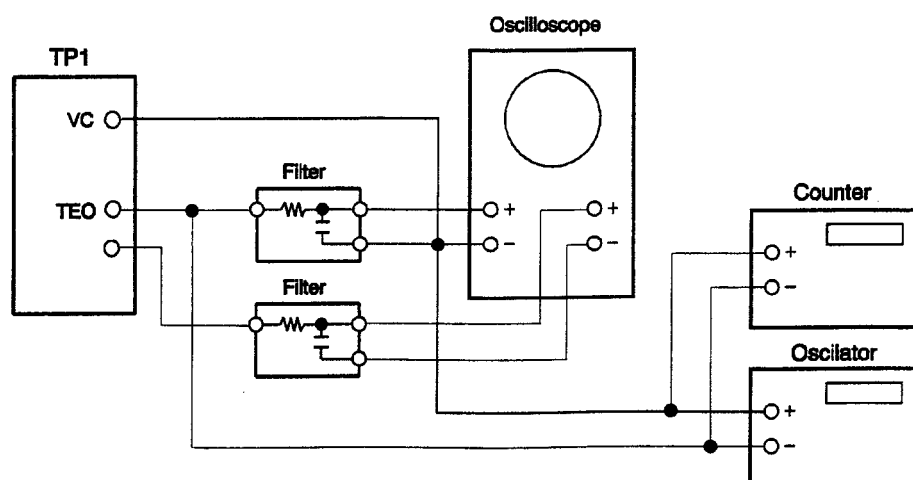
- ② Push the TRACK  button (03 is indicated), then push the PLAY button.
- ③ Observe TEO on the scope.




Measure the voltage of A,B and in case $\frac{|A-B|}{A+B}$ exceeds 15%, please replace pick-up as it is defected.

3. Adjustment of Focus Gain

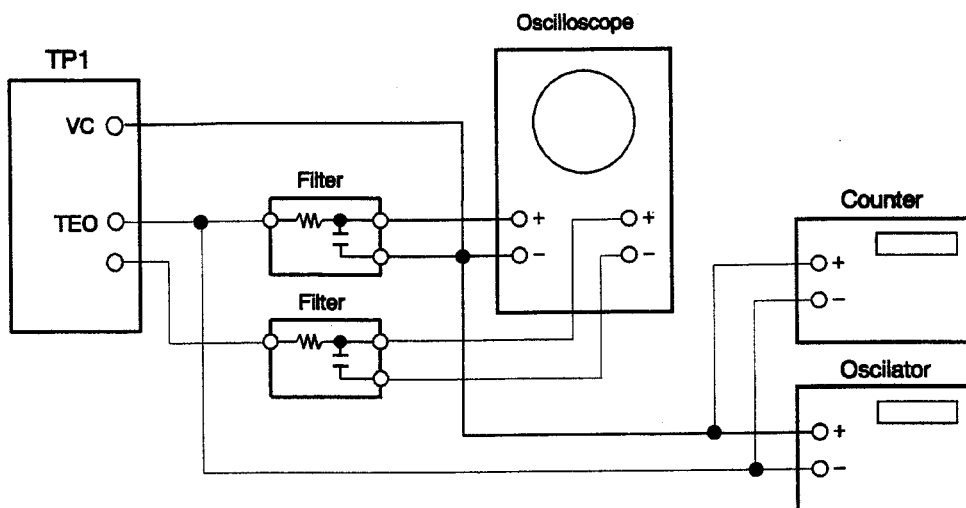
① Connections



- ② Push the TRACK  Button (04 is indicated), then push the PLAY button.
- ③ Set the oscillator 1.1kHz, 0.6 Vp-p mode.
- ④ Make the oscilloscope in X-Y mode.
- ⑤ Adjust the VR1 (FOCUS) so as to symmetrize Lissajous figure to X axis or Y axis.

4. Adjustment of Tracking Gain

① Connections

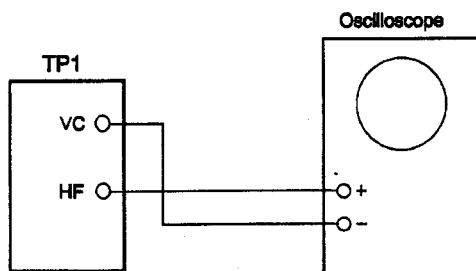


- ② Confirm that **04** is indicated.
- ③ Set the oscillator 1.9kHz, 0.6Vp-p mode.
- ④ Make the oscilloscope in X-Y mode.
- ⑤ Adjust the VR2 (**TRACK**) so as to symmetrize Lissajous figure to X axis or Y axis.

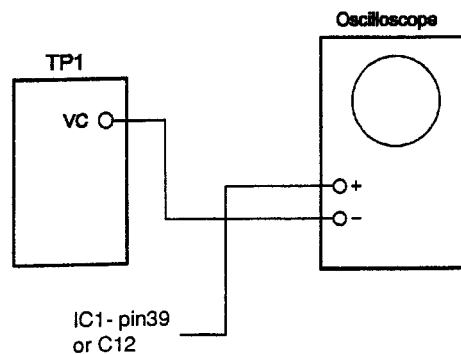
5. Confirmation of HF Waveform

① Connections

For PWB Item No. 222 2401 207



For PWB Item Nos. 222 2401 003
222 2401 100



- ② Observe HF waveform on the scope.
- ③ The standard amplitude of HF waveform is 1.1V. If it is less than 0.8V, please replace pick-up as it is defected.

6. Adjustment of Super Linear Converter

Adjustment of Super Linear Converter is only performed at a time the DA Converter is replaced.

Adjustment Procedure

- ① Connections
Connect the LINE OUT to a distortion meter through the low-pass filter.
- ② Playback a disc obtains 1kHz, 0dB sine wave tone.
- ③ Adjust the VR300, VR301 and obtain minimum THD.

VR300 R-channel

VR301 L-channel

THD standard is less than 0.006%

About the Service Program





The service program is a program specially for servo adjustments and for confirmations.

Actuating the Service Program.

- ① Turn the power off.
- ② While simultaneously pushing the center blue buttons (1,2) of remote control (RC-35), turn the power on.
- ③ Program version of microcomputer indicated on the remote control signifies start actuating of service program.

Contents of Service Program

After actuating the service program, select an aiming process number with the TRACK (◀▶) buttons, TIME button, PITCH BEND button, and PITCH button, and push the PLAY button to execute processing. The process number is then displayed on the TRACK indication portion.

| | Process No. (TRACK Indication) | Function | Contents Explanation |
|---|-----------------------------------|------------------------------------|--|
| TRACK BUTTONS   | 01 | OPEN/CLOSE | Performs OPEN/CLOSE each time the PLAY button is pushed. |
| | 02 | Slide | Moves pick-up to the center of disc. |
| | 03 | FOCUS SERVO ON | Turns the FOCUS Servo ON. |
| | 04 | Confirmation of TRACKING OFFSET | Rotates the disc. Checks divergence of Tracking Offset. |
| | 05 | Adjustment of Gain | Adjusts FOCUS, TRACKING Gains. Normally the same as PLAY MODE. |
| | 06 | Cleaning of Pick-up Lens | Pick-up. moves when SEARCH (◀▶) button is pressed. Move the pick-up under the hole of mechanism PWB, and clean the lens. |
| TIME | 0A | CHUCKING Test | Repeats OPEN/CLOSE of tray, servo ON, and TOC read. |
| PITCH BEND  | 0B | Heat Run (No Skip Check) | Repeats OPEN/CLOSE of tray, repeats playing the first and the last programs of music on the disc. When an error occurs, displays error code and stops. |
| PITCH BEND  | 0C | Heat Run (With Skip Check) | Repeats OPEN/CLOSE of tray, repeats playing the first and the last program of music on the disc. Stops when skip (track jump) occurs. |

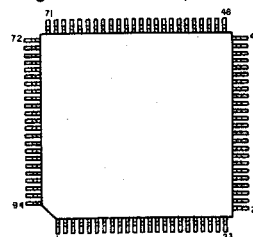
IC TERMINAL FUNCTION LIST

TABLE OF MICROCOMPUTER (IC800) TERMINALS

IC800 is utilizing an external ROM in its initial lot until using the mask item. As the contents of same terminals differ according to the lot for this reason, please be reminded at a time performing service. External ROM utilizing models are up to these serial numbers listed below.

Model Serial No.
EUROPE ~ 881, 886 ~ 950
U.K. ~ 300
U.S.A. ~ 620

Model Serial No.
CANADA ~ 130
Multi-Voltage ~ 100



| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|-----------------|-----|---|
| 1 | CUEL2 | O | CUE LED ON/OFF signal of CD-2. ON at "H". |
| 2 | PLYL2 | O | PLAY LED ON/OFF signal of CD-2. ON at "H". |
| 3 | PITL2 | O | PITCH LED ON/OFF signal of CD-2. ON at "H". |
| 4 | PITL1 | O | PITCH LED ON/OFF signal of CD-1. ON at "H". |
| 5 | PLYL1 | O | PLAY LED ON/OFF signal of CD-1. ON at "H". |
| 6 | CUEL1 | O | CUE LED ON/OFF signal of CD-1. ON at "H". |
| 7 | RST- | I | Hard reset input. Reset at "L". |
| 8 | V _{DD} | — | +5V power supply. |
| 9 | X2 | I | Clock oscilation circuit input 2. |
| 10 | X1 | I | Clock oscilation circuit input 1. |
| 11 | V _{SS} | — | 0V power supply. |
| 12 | V _{SS} | — | 0V power supply. |
| 13 | — | — | Not connected. |
| 14 | LCE2 | O | Chip enable signal of CD-2's LCD driver. |
| 15 | LCLK2 | O | Command transmitting clock for CD-2's LCD driver. |
| 16 | LDAT2 | O | Command data for CD-2's LCD driver. |
| 17 | LCE1 | O | Chip enable signal of CD-1's LCD driver. |
| 18 | LCLK1 | O | Command transmitting clock for CD-1's LCD driver. |
| 19 | LDAT1 | O | Command data for CD-1's LCD driver. |
| 20 | — | O | Not used. Fixed to "L". |
| 21 | — | — | Not Connected. |
| 22 | — | O | Not used. Fixed to "L". |
| 23 | — | O | Not used. Fixed to "L". |
| 24 | — | O | Not used. Fixed to "L". |
| 25 | WR- | O | Not used. Mask item... fixed to "L", external ROM... fixed to "H". |
| 26 | OE- | O | Enable signal output for external ROM. Mask item... fixed to "L", external ROM... pulse output fot reading. |
| 27 | KOUT3 | O | Key matrix scan signal 3. |
| 28 | KOUT2 | O | Key matrix scan signal 2. |
| 29 | KOUT1 | O | Key matrix scan signal 1. |
| 30 | KOUT0 | O | Key matrix scan signal 0. |
| 31 | — | — | Not connected. |
| 32 | A15 | O | Memory address 15. Not used. Mask item... fixed to "L". |
| 33 | A14 | O | Memory address 14. Mask item... fixed to "L". |
| 34 | A13 | O | Memory address 13. Mask item... fixed to "L". |
| 35 | — | — | Not connected. |
| 36 | A12 | O | Memory address 12. Mask item... fixed to "L". |
| 37 | A11 | O | Memory address 11. Mask item... fixed to "L". |
| 38 | A10 | O | Memory address 10. Mask item... fixed to "L". |
| 39 | A9 | O | Memory address 9. Mask item... fixed to "L". |
| 40 | A8 | O | Memory address 8. Mask item... fixed to "L". |
| 41 | — | — | Not connected. |

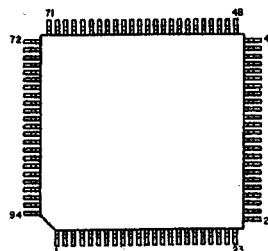
| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|------------------|-----|---|
| 42 | AD7 | I/O | Data bus 7. Mask item... fixed to "L". |
| 43 | AD6 | I/O | Data bus 6. Mask item... fixed to "L". |
| 44 | AD5 | I/O | Data bus 5. Mask item... fixed to "L". |
| 45 | AD4 | I/O | Data bus 4. Mask item... fixed to "L". |
| 46 | AD3 | I/O | Data bus 3. Mask item... fixed to "L". |
| 47 | AD2 | I/O | Data bus 2. Mask item... fixed to "L". |
| 48 | AD1 | I/O | Data bus 1. Mask item... fixed to "L". |
| 49 | AD0 | I/O | Data bus 0. Mask item... fixed to "L". |
| 50 | ASTB | O | Pulse for address latch. Mask item... fixed to "L". |
| 51 | V _{ss} | — | 0V power supply. |
| 52 | V _{ss} | — | 0V power supply. |
| 53 | — | — | Not connected. |
| 54 | MODE | I | Memory mode selection terminal. Use external ROM at "H", use mask ROM at "L". Mask item... "L", external ROM "H". |
| 55 | — | — | Not connected. |
| 56 | — | I | Not used. |
| 57 | — | I | Not used. |
| 58 | — | I | Not used. |
| 59 | — | I | Not used. |
| 60 | — | — | Not connected. |
| 61 | — | I | Not used. |
| 62 | — | I | Not used. |
| 63 | — | I | Not used. |
| 64 | — | I | Not used. |
| 65 | V _{DD} | — | +5v power supply. |
| 66 | V _{DD} | — | +5v power supply. |
| 67 | PIT1 | I | CD-1 pitch volume input. |
| 68 | PIT2 | I | CD-2 pitch volume input. |
| 69 | — | I | Not used. Fixed to "L". |
| 70 | — | — | Not connected. |
| 71 | — | I | Not used. Fixed to "L". |
| 72 | — | I | Not used. Fixed to "L". |
| 73 | — | I | Not used. Fixed to "L". |
| 74 | — | I | Not used. Fixed to "L". |
| 75 | — | I | Not used. Fixed to "L". |
| 76 | AV _{DD} | — | +5v power supply for A/D converter.- |
| 77 | AVREF1 | — | +5V. A/D converter reference voltage. |
| 78 | — | — | Not connected. |
| 79 | AV _{SS} | — | 0V power supply for A/D converter. |
| 80 | — | O | Not used. |
| 81 | — | O | Not used. |
| 82 | AVREF2 | — | +5V. D/A converter reference voltage. |
| 83 | AVREF3 | — | 0V. D/A converter reference voltage. |
| 84 | — | — | Not connected. |
| 85 | KIN10 | I | CD-1 key data 0. |
| 86 | KIN11 | I | CD-1 key data 1. |
| 87 | KIN12 | I | CD-1 key data 2. |
| 88 | KIN13 | I | CD-1 key data 3. |
| 89 | KIN20 | I | CD-2 key data 0. |
| 90 | KIN21 | I | CD-2 key data 1. |
| 91 | KIN22 | I | CD-2 key data 2. |
| 92 | KIN23 | I | CD-2 key data 3. |
| 93 | RXD— | I | Serial interface reception data. |
| 94 | TXD— | O | Serial interface transmission data. |

TABLE OF MICROCOMPUTER μ PD78233GJ-5BG(IC200) TERMINALS

IC200 is utilizing an external ROM in its initial lot until using the mask item. As the contents of some terminals differ according to the lot for this reason, please be reminded at a time performing service. External ROM utilizing models are up to these serial numbers listed below.

Model Serial No.
EUROPE ~ 881, 886 ~ 950
U.K. ~ 300
U.S.A. ~ 620

Model Serial No.
CANADA ~ 130
Multi-Voltage ~ 100



| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|-----------------|-----|---|
| 1 | — | | |
| 2 | RST2 | O | Reset signal of IC201(μ PD6381GF). |
| 3 | BRRQ | O | Break request signal of IC201(μ PD6381GF). Not used. Fixed to "H". |
| 4 | BRAK | I | Break acknowledge signal of IC201(μ PD6381GF). Not used. Fixed to "H". |
| 5 | GF | I | ? |
| 6 | SO | I | IC201 serial data input. |
| 7 | RST— | I | Hard reset input. Reset at "L". |
| 8 | V _{DD} | — | +5V power supply. |
| 9 | X2 | I | Clock oscillation circuit input 2. |
| 10 | X1 | I | Clock oscillation circuit input 1. |
| 11 | V _{SS} | — | 0V power supply. |
| 12 | V _{SS} | — | 0V power supply. |
| 13 | — | — | Not connected. |
| 14 | CLOCK | O | Clock for servo command, level command. Connected to IC1, IC300. |
| 15 | DATA | O | Data for servo command, level command. Connected to IC1, IC300. |
| 16 | XLAT | O | Latch pulse of servo command. Latched at falling edge. |
| 17 | — | O | Not used. Fixed to "L". |
| 18 | LDON | O | Laser ON/OFF signal of optical pickup. Laser emits light at "H". |
| 19 | — | O | Not used. Fixed to "L". |
| 20 | — | O | Not used. Fixed to "L". |
| 21 | — | — | Not connected. |
| 22 | — | O | Not used. Fixed to "L". |
| 23 | DRNO— | I | Mechanism number input. Mechanism 1 at "L", mechanism 2 at "H". |
| 24 | TXDEN | O | Demand signal of serial interface using. Used at "H". |
| 25 | — | O | Not used. Mask item — fixed to "L", external ROM — fixed to "H". |
| 26 | OE— | O | Output enable signal for external ROM. Mask item — fixed to "L", external ROM — pulse output for reading. |
| 27 | CS— | O | Chip select signal of IC201. Normally "H". "L" at select only. |
| 28 | C—/D | O | Command/data designate signal of IC201. Command at "L", indicates data transmitting mode at "H". |
| 29 | SCK— | O | Clock for command transmission to IC201. |
| 30 | SI | O | Command data to IC201. |
| 31 | — | — | Not connected. |
| 32 | A15 | O | Memory address 15. Not used. Mask item — fixed to "L". |
| 33 | A14 | O | Memory address 14. Mask item — fixed to "L". |
| 34 | A13 | O | Memory address 13. Mask item — fixed to "L". |
| 35 | — | — | Not connected. |
| 36 | A12 | O | Memory address 12. Mask item — fixed to "L". |
| 37 | A11 | O | Memory address 11. Mask item — fixed to "L". |
| 38 | A10 | O | Memory address 10. Mask item — fixed to "L". |
| 39 | A9 | O | Memory address 9. Mask item — fixed to "L". |
| 40 | A8 | O | Memory address 8. Mask item — fixed to "L". |
| 41 | — | — | Not connected. |
| 42 | AD7 | I/O | Data bus 7. Mask item — fixed to "L". |
| 43 | AD6 | I/O | Data bus 6. Mask item — fixed to "L". |

| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|------------------|-----|--|
| 44 | AD5 | I/O | Data bus 5. Mask item — fixed to "L". |
| 45 | AD4 | I/O | Data bus 4. Mask item — fixed to "L". |
| 46 | AD3 | I/O | Data bus 3. Mask item — fixed to "L". |
| 47 | AD2 | I/O | Data bus 2. Mask item — fixed to "L". |
| 48 | AD1 | I/O | Data bus 1. Mask item — fixed to "L". |
| 49 | AD0 | I/O | Data bus 0. Mask item — fixed to "L". |
| 50 | ASTB | O | Pulse for address latch. Mask item — fixed to "L". * |
| 51 | V _{SS} | — | 0V power supply. |
| 52 | V _{SS} | — | 0V power supply. |
| 53 | — | — | Not connected. |
| 54 | MODE | I | Memory read select terminal. External ROM use at "H", mask ROM use at "L". Mask item — "L", external ROM — "H". |
| 55 | — | — | Not connected. |
| 56 | AMUTE | O | Audio output mute signal. Mute at "H". |
| 57 | SQCK | O | Clock for sub—code reading. |
| 58 | SENS | I | Indication signal of servo actuating condition. Emits from IC2. |
| 59 | CLOSE— | I | Tray CLOSE switch. CLOSE state at "L". |
| 60 | — | — | Not connected. |
| 61 | OPEN— | I | Tray OPEN switch. OPEN state at "L". |
| 62 | SQSO | I | Sub—code data input. Emits from IC2. |
| 63 | DFLAT | O | Command latch pulse for digital filter. Output to IC300. |
| 64 | — | O | Not used. Fixed to "H". |
| 65 | V _{DD} | — | +5V power supply. |
| 66 | V _{DD} | — | +5V power supply. |
| 67 | LDIN | I | Analog input for tray drive servo. |
| 68 | STIN | I | Input for between microcomputers communication. Connected to STOUT of the other mechanism microcomputer. To communicate with 3 kinds of voltages, i.e. 0V, 2.5V, 5V. |
| 69 | — | I | Not used. Fixed to "L". |
| 70 | — | — | Not connected. |
| 71 | — | I | Not used. Fixed to "L". |
| 72 | — | I | Not used. Fixed to "L". |
| 73 | — | I | Not used. Fixed to "L". |
| 74 | — | I | Not used. Fixed to "L". |
| 75 | — | I | Not used. Fixed to "L". |
| 76 | AV _{DD} | — | +5V power supply for A/D converter. |
| 77 | AVREF1 | — | +5V. A/D converter reference voltage. |
| 78 | — | — | Not connected. |
| 79 | AV _{SS} | — | 0V power supply for A/D converter. |
| 80 | LOADER | O | Tray drive signal. Stops at 2.5V, CLOSE action at 3V, OPEN action at 2V. |
| 81 | STOUT | O | Output for microcomputer communication. Connects to STIN of the other microcomputer. Communicates with 3 kinds of voltages, i.e. 0V, 2.5V, 5V. |
| 82 | AVREF2 | — | +5V. D/A converter reference voltage. |
| 83 | AVREF3 | — | 0V. D/A converter reference voltage. |
| 84 | — | — | Not connected. |
| 85 | — | I | Not used. Fixed to 0V. |
| 86 | EJSW— | I | EJECT/OPEN switch input. Connected to the switch of front panel. Shifts to "L" when the switch is pressed. |
| 87 | RST | I | Input for +5V voltage observation. Shifts to "H" when POWER switch is turned off. |
| 88 | WFCK | I | Connected to WFCK output of IC2. 7.35kHz clock. |
| 89 | SCOR | I | Sub-code sink input. Connect to IC2. Input 75 pulses per 1 second. |
| 90 | DRDY | I | Data receiving READY signal of IC201. Fixed to "H". |
| 91 | — | I | Not used. Fixed to "L". |
| 92 | OVF— | I | Over flag of IC201. Normally "H". |
| 93 | RXD— | I | Serial interface reception data. |
| 94 | TXD— | O | Serial interface transmission data. |

TABLE OF DIGITAL SIGNAL PROCESSOR μ PD6381GF (IC201) TERMINALS

| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|-----------------|-----|--|
| 1 | DRDY | O | Command reception READY signal from microcomputer. Normally "H". |
| 2 | FSMASK | I | LRCK mask signal. Fixed to "L". |
| 3 | SEL | I | Clock input select. Fixed to "H". |
| 4 | — | I | Not used. |
| 5 | XO | O | X'tal oscillation output. |
| 6 | XI | I | X'tal oscillation input. |
| 7 | GND | — | 0V power supply. |
| 8 | XFSO | O | Clock Output. Not used. |
| 9 | — | — | Not connected. |
| 10 | LRCKO | O | LR clock output. 44.1kHz. |
| 11 | WCKO | O | Word clock output. 88.2kHz. Not used. |
| 12 | BCKO | O | Bit clock output. 2.1MHz. |
| 13 | BRAK— | O | Break acknowledge output. Fixed to "H". |
| 14 | GND | — | 0V power supply. |
| 15 | BRRQ— | I | Break request input. Fixed to "H". |
| 16 | FSRST— | I | Program counter reset input. Fixed to "H". |
| 17 | RST2— | I | Soft reset input. Normally "H". |
| 18 | RST— | I | Hard reset input. Normally "H". |
| 19 | A0 | O | External RAM address 0. |
| 20 | A1 | O | External RAM address 1. |
| 21 | A2 | O | External RAM address 2. |
| 22 | A3 | O | External RAM address 3. |
| 23 | A4 | O | External RAM address 4. |
| 24 | A5 | O | External RAM address 5. |
| 25 | A6 | O | External RAM address 6. |
| 26 | A7 | O | External RAM address 7. |
| 27 | A8 | O | External RAM address 8. |
| 28 | A9 | O | External RAM address 9. Not used. |
| 29 | A10 | O | External RAM address 10. Not used. |
| 30 | A11 | O | External RAM address 11. Not used. |
| 31 | A12 | O | External RAM address 12. Not used. |
| 32 | A13 | O | External RAM address 13. Not used. |
| 33 | V _{DD} | — | +5V power supply. |
| 34 | A14 | O | External RAM address 14. Not used. |
| 35 | A15 | O | External RAM address 15. Not used. |
| 36 | A16 | O | External RAM address 16. Not used. |
| 37 | RAS— | O | External RAM low address strobe signal. |
| 38 | CAS— | O | External RAM column address strobe signal. |
| 39 | WE— | O | External RAM write enable signal. |
| 40 | I01 | I/O | External RAM data 1. |
| 41 | I02 | I/O | External RAM data 2. |
| 42 | I03 | I/O | External RAM data 3. |
| 43 | I04 | I/O | External RAM data 4. |
| 44 | I05 | I/O | External RAM data 5. Not used. |
| 45 | I06 | I/O | External RAM data 6. Not used. |
| 46 | I07 | I/O | External RAM data 7. Not used. |
| 47 | I08 | I/O | External RAM data 8. Not used. |
| 48 | I09 | I/O | External RAM data 9. Not used. |
| 49 | I010 | I/O | External RAM data 10. Not used. |
| 50 | I011 | I/O | External RAM data 11. Not used. |
| 51 | I012 | I/O | External RAM data 12. Not used. |

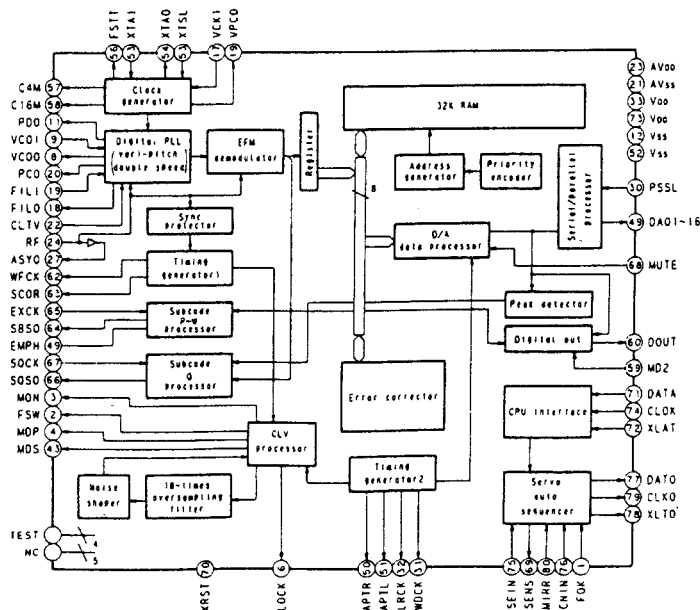
| Terminal No. | Symbol Name | I/O | Terminal Function |
|--------------|-------------|-----|--|
| 52 | I013 | I/O | External RAM data 13. Not used. |
| 53 | I014 | I/O | External RAM data 14. Not used. |
| 54 | I015 | I/O | External RAM data 15. Not used. |
| 55 | I016 | I/O | External RAM data 16. Not used. |
| 56 | GND | — | 0V power supply. |
| 57 | MD0 | I | Mode select 0. Fixed to "L". |
| 58 | MD1 | I | Mode select 1. Fixed to "H". |
| 59 | MD2 | I | Mode select 2. Fixed to "L". |
| 60 | BCLK1 | I | Bit clock input. 2.18MHz. |
| 61 | LRCK1 | I | LR clock input. 44.1kHz. |
| 62 | BCLK2 | I | Fixed to "L". Not used. |
| 63 | LRCK2 | I | Fixed to "L". Not used. |
| 64 | DI1 | I | Data input. |
| 65 | DO1 | O | Data output. |
| 66 | DI2 | I | Fixed to "L". Not used. |
| 67 | DO2 | O | Not used. |
| 68 | DO3 | O | Not used. |
| 69 | DORQ— | I | Not used. Fixed to "H". |
| 70 | GF— | O | G flag output. Normally "H". |
| 71 | OVF— | O | Over flag output. Normally "H". |
| 72 | VDD | — | +5V power supply. |
| 73 | TEST0 | I | Fixed to "H". |
| 74 | TEST1 | I | Fixed to "H". |
| 75 | SETRDY | O | Not used. |
| 76 | SO | O | Serial data output. |
| 77 | SCK— | I | Serial data input/output clock. |
| 78 | SI | I | Serial data input. |
| 79 | C—/D | I | Command /data designation signal. "L" - command, "H" - data. |
| 80 | CS— | I | Chip select input. |

CXD2500AQ Terminal Function

| Terminal No. | Symbol | I/O | | Terminal Function |
|--------------|--------|-----|--------|--|
| 1 | FOK | I | | Input terminal for OK focussing. Use for Servo-autosequencer. |
| 2 | FSW | O | Z,0 | Output to shift time constant of output filter for spindle motor. |
| 3 | MON | O | 1,0 | ON/OFF control output for spindle motor. |
| 4 | MDP | O | 1,Z,0 | Servo control for spindle motor. |
| 5 | MDS | O | 1,Z,0 | Servo control for spindle motor. |
| 6 | LOCK | O | 1,0 | Sampling GFS by 460 Hz and if it is "H", delivers "H" ; if it is continuously "L" 8 times, delivers "L". |
| 7 | NC | | — | |
| 8 | VCOO | O | 1,0 | Oscillation current output for analog EFM PLL. |
| 9 | VCOI | I | | Oscillation current output for analog EFM PLL. f LOCK=8.6436MHz. |
| 10 | TEST | I | | TEST output. Normally GND. |
| 11 | PDO | O | 1,Z,0 | Charge pump output for analog EFM PLL. |
| 12 | Vss | | | GND. |
| 13 | NC | | — | |
| 14 | NC | | — | |
| 15 | NC | | — | |
| 16 | VPCO | O | 1,Z,0 | Charge pump output for variable pitch PLL. |
| 17 | VCKI | O | | Clock input from external VCO for variable pitch. fc center=16.9344MHz. |
| 18 | FILO | O | Analog | Filter output for master PLL. (slave=digital PLL) |
| 19 | FILI | I | | Filter input for master PLL. |
| 20 | PCO | O | 1,Z,0 | Charge pump output for master PLL. |
| 21 | AVss | | | Analog GND. |
| 22 | CLTV | I | | Control voltage input for master VCO. |
| 23 | AVdd | | | Analog power supply (+5V). |
| 24 | RF | I | | EFM signal input. |
| 25 | BIAS | I | | Constant-current input for Asymmetry circuit. |
| 26 | ASYI | I | | Compare voltage input for Asymmetry. |
| 27 | ASYO | O | 1,0 | Full swing output for EFM. (L=Vss, H=VDD). |
| 28 | ASYE | I | | L: Asymmetry circuit → OFF. H: Asymmetry circuit → ON. |
| 29 | NC | | — | |
| 30 | PSSL | I | | Input to shift output mode of audio data. Serial output at L; parallel output at H. |
| 31 | WDCK | O | 1,0 | D/A Interface for 48 bit slot. Word-clock f=2 Fs. |
| 32 | LRCK | O | 1,0 | D/A Interface for 48 bit slot. LR-clock f= Fs. |
| 33 | Vdd | | | Power supply (+5V). |
| 34 | DA16 | O | 1,0 | At PSSL=1 for DA16 (MBS) output; PSSL=0 for serial data of 48 bit slot. (2s'COMP, MSB first). |
| 35 | DA15 | O | 1,0 | At PSSL=1 for DA15 output; PSSL=0 for bit clock of 48 bit slot. |
| 36 | DA14 | O | 1,0 | At PSSL=1 for DA14 output; PSSL=0 for serial data of 64 bit slot. (2s'COMP, LSB first). |
| 37 | DA13 | O | 1,0 | At PSSL=1 for DA13 output; PSSL=0 for bit clock of 64 bit slot. |
| 38 | DA12 | O | 1,0 | At PSSL=1 for DA12 output; PSSL=0 for LR clock of 64 bit slot. |
| 39 | DA11 | O | 1,0 | At PSSL=1 for DA11 output; PSSL=0 for GTOP output. |
| 40 | DA10 | O | 1,0 | At PSSL=1 for DA10 output; PSSL=0 for XUGF output. |
| 41 | DA09 | O | 1,0 | At PSSL=1 for DA09 output; PSSL=0 for XPLCK output. |
| 42 | DA08 | O | 1,0 | At PSSL=1 for DA08 output; PSSL=0 for GFS output. |
| 43 | DA07 | O | 1,0 | At PSSL=1 for DA07 output; PSSL=0 for RFCK output. |
| 44 | DA06 | O | 1,0 | At PSSL=1 for DA06 output; PSSL=0 for C2PO output. |
| 45 | DA05 | O | 1,0 | At PSSL=1 for DA05 output; PSSL=0 for XRAOF output. |
| 46 | DA04 | O | 1,0 | At PSSL=1 for DA04 output; PSSL=0 for MNT3 output. |
| 47 | DA03 | O | 1,0 | At PSSL=1 for DA03 output; PSSL=0 for MNT2 output. |
| 48 | DA02 | O | 1,0 | At PSSL=1 for DA02 output; PSSL=0 for MNT1 output. |
| 49 | DA01 | O | 1,0 | At PSSL=1 for DA01 output; PSSL=0 for MNT0 output. |
| 50 | APTR | O | 1,0 | Control output for aperture compensation. In H for R-ch. |
| 51 | APTL | O | 1,0 | Control output for aperture compensation. In H for L-ch. |

| Terminal No. | Symbol | I/O | | Terminal Function |
|--------------|--------|-----|-------|--|
| 52 | Vss | | | GND. |
| 53 | XTAI | I | | X'tal oscillation circuit input. By selecting of mode, f=16.9344MHz or 33.8688MHz. |
| 54 | XTAO | O | 1,0 | X'tal oscillation circuit input. f=16.9344MHz. |
| 55 | XTSL | I | | Selection input terminal of X'tal. "L" for X'tal 16.9344MHz; H for 33.8688MHz. |
| 56 | FSTT | O | 1,0 | 2/3 Dividing output of 53 and 54 terminal. No change by variable pitch. |
| 57 | C4M | O | 1,0 | 4.2336MHz output. When variable pitched, simultaneously changes. |
| 58 | C16M | O | 1,0 | 16.9344MHz output. When variable pitched, simultaneously changes. |
| 59 | MD2 | I | | Digital-out ON/OFF control. ON at H; OFF at L. |
| 60 | DOUT | O | 1,0 | Digital-out output terminal. |
| 61 | EMPH | O | 1,0 | When playback disc emphasized, outputs H; otherwise outputs L. |
| 62 | WFCK | O | 1,0 | WFCK (Write Flame Clock) output. |
| 63 | SCOR | O | 1,0 | Output of subcode sync. S0+S1. H output when either one detected. |
| 64 | SBSO | O | 1,0 | Serial output of Sub P~W. |
| 65 | EXCK | I | | Clock iutput for SBSO read-out. |
| 66 | SQSO | O | 1,0 | Output for Sub Q 80 bits and PCM peak level 16 bits. |
| 67 | SQCK | I | | Clock input for SQSO read-out. |
| 68 | MUTE | I | | Mute at H; remove mute at L. |
| 69 | SENS | — | 1,Z,0 | SENS output. Outputs to CPU. |
| 70 | XRST | I | | System reset input. Resets at "L". |
| 71 | DATA | I | | Input of serial data from CPU. |
| 72 | XLAT | I | | Input for latch from CPU. Latches serial data at release. |
| 73 | VDD | | | Power supply (+5V). |
| 74 | CLOCK | I | | Serial data transfer clock input from CPU. |
| 75 | SEIN | I | | SENS input from SSP. |
| 76 | CNIN | I | | Input of tracking pulse. |
| 77 | DATO | O | 1,0 | Serial data output to SSP. |
| 78 | XLTO | O | 1,0 | Serial data latch output to SSP. |
| 79 | CLKO | O | 1,0 | Serial data transfer clock output to SSP. |
| 80 | MIRR | I | | Mirror signal input. Use for track jump for over 128 tracks, using autosequencer. |

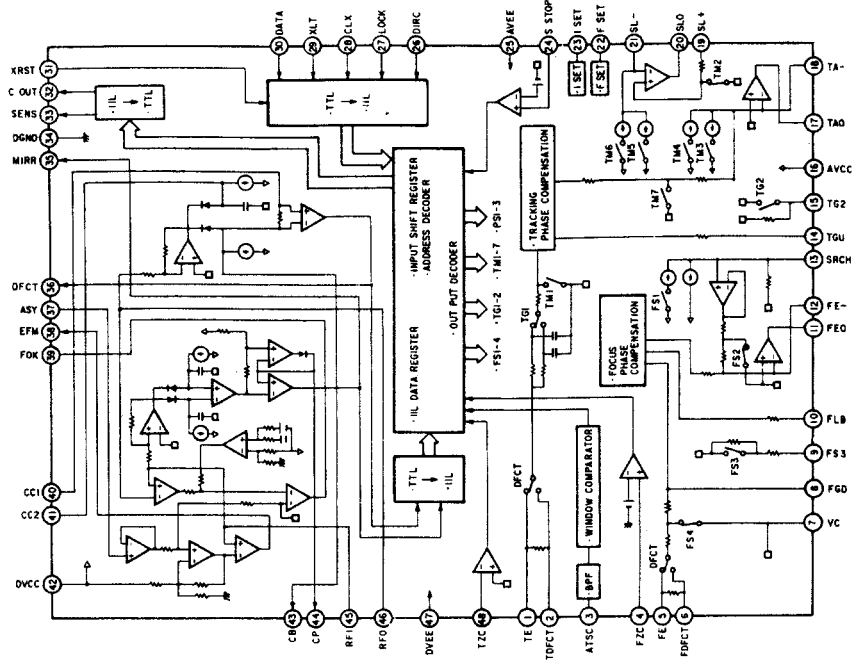
CXD2500AQ



CXA1372Q Terminal Function

| Terminal No. | Symbol | I/O | Terminal Function |
|--------------|--------|-----|--|
| 1 | Vc | I | Mid-point voltage input terminal. |
| 2 | FGD | I | In case of reducing higher range gain of focus servo, connect a capacitor between this terminal and terminal number (9). |
| 3 | FS3 | I | Shifts higher range gain of focus servo by FS3 ON/OFF. |
| 4 | FLB | I | Terminal for external time constant to increase lower range of focus servo. |
| 5 | FEO | O | Focus drive output. |
| 6 | FE- | I | Reverse input terminal for focus amplifier. |
| 7 | SRCH | I | Terminal for external time constant to make focus search waveform. |
| 8 | TGU | I | Terminal for external time constant to shift higher range gain of tracking. |
| 9 | TG2 | I | Terminal for external time constant to shift higher range gain of tracking. |
| 10 | TAO | O | Tracking drive output. |
| 11 | TA- | I | Reverse input terminal for tracking amplifier. |
| 12 | SL+ | I | Non-reverse input terminal for sled amplifier. |
| 13 | SLO | O | Sled drive output. |
| 14 | SL- | I | Reverse input terminal for sled amplifier. |
| 15 | FSET | I | Terminal to compensate peak in focus/tracking phase. |
| 17 | ISET | I | Delivers a current to set the height of focus search, track jump, and sled kick. |
| 18 | SSTOP | I | Terminal for limit switch ON/OFF to detect disc innermost circle. |
| 19 | DIRC | I | Terminal is used at the time of 1 track jump. A 47 kohm pull up resistor is included. |
| 20 | LOCK | I | Reckless drive protection circuit of sled; activates at "L". A 47k ohm pull up resistor is included. |
| 21 | CLK | I | Serial data transfer clock input from CPU. |
| 22 | XLT | I | Latch input from CPU. |
| 23 | DATA | I | Serial data input from CPU. |
| 24 | XRST | I | Reset input terminal. Resets at "L". |
| 26 | C.OUT | O | Terminal to output signal for track number count. |
| 27 | SENS | O | Terminal to output FZC, AS, TZC, SSTOP by command from CPU. |
| 29 | MIRR | O | Output terminal for MIRR comparator. |
| 30 | DFCT | O | Output terminal for DEFECT comparator. |
| 31 | ASY | I | Input terminal for auto-symmetric control. |
| 32 | EFM | O | Output terminal for EFM comparator. |
| 33 | FOK | O | Output terminal for focus OK (FOK) comparator. |
| 34 | CC1 | O | DEFECT bottom hold output terminal. |
| 35 | CC2 | I | Input terminal to input DEFECT bottom hold output by capacitance combination. |
| 37 | CB | I | Capacitor connecting terminal for DEFECT bottom hold. |
| 38 | CP | I | MIRR hold capacitor connecting terminal. A non-reverse input terminal for MIRR comparator. |
| 39 | RFI | I | Input terminal to input RF summing amplifier output by capacitance combination. |
| 40 | RFO | O | Output terminal for RF summing amplifier. Check point for eye pattern. |
| 42 | TZC | I | Tracking zero-cross comparator input terminal. |
| 43 | TE | I | Tracking error signal input terminal. |
| 44 | TDFCT | I | Capacitor connecting terminal for time constant at the time of defect. |
| 45 | ATSC | I | Input terminal of ATSC detecting window comparator. |
| 46 | FZC | I | Input terminal of focus zero-cross comparator. |
| 47 | FE | I | Focus error signal input terminal. |
| 48 | FDFCT | I | Capacitor connecting terminal for time constant at the time of defect. |

CXA1372Q



NOTE FOR PARTS LIST

- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.

- When ordering of part, clearly indicate "1" and "I" (I) to avoid mis-supplying.

- Ordering part without stating its part number can not be supplied.

- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

Parts marked with this symbol  have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer.

• **Resistors**

Ex.: RN 14K 2E 182 G FR
 Type Shape Power Resist- Allowable Others
 ance error

| | | | |
|--------------------|-----------|----------|--------------------------|
| RD : Carbon | 2B : 1/8W | F : ±1% | P : Pulse-resistant type |
| RC : Composition | 2E : 1/4W | G : ±2% | NL : Low noise type |
| RS : Metallic film | 2H : 1/2W | J : ±5% | NB : Non-burning type |
| RW : Winding | 3A : 1W | K : ±10% | FR : Fuse-resistor |
| RN : Metal film | 3D : 2W | M : ±20% | F : Lead wire forming |
| RK : Metal mixture | 3F : 3W | | |
| | 3H : 5W | | |

Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
 Indicates number of zeros after effective number
 2-digit effective number, decimal point indicated by R.
 • Units: ohm

• **Capacitors**

Ex.: CE 04W 1H 2R2 M BP
 Type Shape Dielectric Capacity Allowable Others
 and per- strength error

| | | | |
|---------------------------------|-----------|-------------|----------------------------------|
| CE : Aluminum foil electrolyte | 0J : 6.3V | F : ±1% | HS : High stability type |
| CA : Aluminum solid electrolyte | 1A : 10V | G : ±2% | BP : Non-polar type |
| CS : Tantalum electrolyte | 1C : 16V | J : ±5% | HR : Ripple-resistant type |
| CQ : Film | 1E : 25V | K : ±10% | DL : For charge and discharge |
| CK : Ceramic | 1V : 35V | M : ±20% | HF : For assuring high frequency |
| CC : Ceramic | 1H : 50V | Z : +80% | U : UL part |
| CP : Oil | 2A : 100V | Z : -20% | C : CSA part |
| CM : Mica | 2B : 125V | P : +100% | W : UL-CSA type |
| CF : Metallized | 2C : 160V | -0% | F : Lead wire forming |
| CH : Metallized | 2D : 200V | C : ±0.25pF | |
| | 2E : 250V | D : ±0.5pF | |
| | 2H : 500V | = : Others | |
| | 2J : 630V | | |

Capacity

2 R 2 ⇒ 2.2μF
 1-digit effective number, decimal point indicated by R.
 2-digit effective number, decimal point indicated by R.

• Units: μF, (for P, pF (μpF))

• When the dielectric strength is indicated in AC, "AC" is included after

PRINTED WIRING BOARD PARTS LIST
GU-2403 CONTROL PWB UNIT

| Ref No. | Part No. | Part Name | Remarks |
|-----------------------------|--------------------------|--|---|
| SEMICONDUCTORS GROUP | | | |
| IC800 | 262 1473 001 | IC μ PD78233GJ-5BG | U.S.A. Model Serial No.-620 Europe Model Serial No.-881 No.886-950 U.K. Model Serial No.-300 Canada Model Serial No.-130 Multi-Voltage Model Serial No.-100 |
| IC800 | 262 1691 003 | IC μ PD 78234GJ-516-5BG | U.S.A. Model Serial No.621- Europe Model Serial No.882-885 No.951- U.K. Model Serial No.301- Canada Model Serial No.131- Multi-Voltage Model Serial No.101- |
| IC801 | 262 1597 903 | IC MSM34051FP | |
| IC802,803 | 263 0533 000 | IC LC7582 | |
| IC804 | 262 0943 901 | IC HD74HC373FP-TL | U.S.A. Model Serial No.-620 Europe Model Serial No.-811 No.886-950 U.K. Model Serial No.-300 Canada Model Serial No.-130 Multi-Voltage Model Serial No.-100 |
| IC805 | 205 0488 010 GEN 2144 | IC 28P IC SOCKET CONTROL ROM SUB Ass'Y | U.S.A. Model Serial No.-620 Europe Model Serial No.-881 No.886-950 U.K. Model Serial No.-300 Canada Model Serial No.-130 Multi-Voltage Model Serial No.-100 |
| IC806 | 262 1647 905 | IC MN1382-S(TX) | |
| TR800-805 | 269 0082 902 | Transistor DTC114EK | |
| D800,801 | 276 0438 949 | Diode MA151WK | |
| D802,803 | 276 0438 907 | Diode MA151WA | |
| D804-815 | 276 0438 910 | Diode MA151A | |
| LE810 | 393 9511 104 | LED BACK LIGHT | (CD-1) |
| LE811 | 393 9462 017 | LED SLR-40VC3F(RED) | CUE Monitor(CD-1) |
| LE812,813 | 393 9512 006 | LED SLR-40MC3F (GRN) | PLAY/PAUSE,PITCH Monitor (CD-1) |
| LE830 | 393 9511 104 | LED BACK LIGHT | (CD-2) |
| LE831 | 393 9462 017 | LED SLR-40VC3F(RED) | CUE Monitor(CD-2) |
| LE832,833 | 393 9512 006 | LED SLR-40MC(GRN) | PLAY/PAUSE,PITCH Monitor (CD-2) |
| LC810 | 393 4139 002 | LCD | |
| LC830 | 393 4139 002 | LCD | |

| Ref No. | Part No. | Part Name | Remarks |
|---|--------------|------------------------------|--|
| RESISTORS GROUP (Not included Carbon Film $\pm 5\%$ 1/4W) | | | |
| R801 | 247 0005 905 | Chip 100ohm 1/4W | RM73B-101J |
| R802 | 247 0008 902 | Chip 18Kohm 1/10W | RM73B-182J |
| R804 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R805 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J U.S.A. Model Serial No.-620 Europe Model Serial No.-881 No.886-950 U.K. Model Serial No.-300 Canada Model Serial No.-130 Multi-Voltage Model No.-100 |
| R806,807 | 247 0007 945 | Chip 1Kohm 1/10W | RM73B-102J |
| R810-813 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R814 | 247 0011 957 | Chip 51Kohm 1/10W | RM73B-513J |
| R815 | 247 0013 942 | Chip 330Kohm 1/10W | RM73B-334J |
| R816 | 247 0006 962 | Chip 470ohm 1/10W | RM73B-471J |
| R817,818 | 247 0005 989 | Chip 220ohm 1/10W | RM73B-221J |
| R819,820 | 247 0003 965 | Chip 27ohm 1/10W | RM73B-270J |
| R823,824 | 247 0003 965 | Chip 27ohm 1/10W | RM73B-270J |
| R830-833 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R834 | 247 0011 957 | Chip 51Kohm 1/10W | RM73B-513J |
| R835 | 247 0013 942 | Chip 330Kohm 1/10W | RM73B-334J |
| R836 | 247 0006 962 | Chip 470ohm 1/10W | RM73B-471J |
| R837,838 | 247 0005 989 | Chip 220ohm 1/10W | RM73B-221J |
| R839,840 | 247 0003 965 | Chip 27ohm 1/10W | RM73B-270J |
| VR810 | 211 0763 015 | Slide Volume | |
| VR830 | 211 0763 015 | Slide Volume | |
| CAPACITORS GROUP | | | |
| C800 | 257 0014 935 | Ceramic-chip 0.1 μ F/25V | CK73F1E104Z |
| C801 | 254 4260 980 | Electrolytic 10 μ F/50V | CE04W1H100M(SME) |
| C810,811 | 257 0014 935 | Ceramic-chip 0.1 μ F/25V | CK73F1E104Z |
| C812 | 257 0006 969 | Ceramic-chip 680pF/50V | CC73SL1H681J |
| C830,831 | 257 0014 935 | Ceramic-chip 0.1 μ F/25V | CK73F1E104Z |
| C832 | 257 0006 969 | Ceramic-chip 680pF/50V | CC73SL1H681J |
| C842,843 | 257 0014 935 | Ceramic-chip 0.1 μ F/25V | CK73F1E104Z |
| C861-865 | 257 0014 935 | Ceramic-chip 0.1 μ F/25V | CK73F1E104Z |
| OTHERS PARTS GROUP | | | |
| X800 | 399 0038 008 | Ceramic Vibrator | CST12.0M |
| SW811-822 | 212 4763 904 | TACT SWITCH (LONG ST) | |
| SW830-841 | 212 4763 904 | TACT SWITCH (LONG ST) | |
| L801-806 | 235 0049 900 | BEADS INDUCTOR | |
| CB800,801 | 205 0708 020 | 18P CONN.SOCKET | |
| CB802 | 205 0717 008 | 8P MINI DIN CONN.BASE | |
| CB810 | 205 0707 021 | 18P CONN.BASE | |
| CB830 | 205 0707 021 | 18P CONN.BASE | |

GU-2402 MAIN PWB UNIT

| Ref No. | Part No. | Part Name | Remarks |
|--|--------------|-------------------------------|----------------------|
| SEMICONDUCTORS GROUP | | | |
| IC700 | 263 0800 005 | IC NJM78M05FA(S) | |
| IC701 | 263 0501 003 | IC NJM79M05FA | |
| IC702 | 263 0695 003 | IC L780S05 | |
| IC703 | 262 1479 005 | IC MSM34051P | |
| IC710 | 268 0076 902 | PROTECTOR ICP-N38 | |
| IC711,712 | 268 0075 903 | PROTECTOR ICP-N25 | |
| IC713-715 | 268 0078 900 | PROTECTOR ICP-N75 | Multi- Voltage Model |
| TR710,711 | 274 0160 907 | Transistor 2SD2144STPU | |
| TR720,721 | 274 0160 907 | Transistor 2SD2144STPU | |
| D700 | 276 0603 004 | Diode MA750 | |
| D702,703 | 276 0603 004 | Diode MA750 | |
| D704-707 | 276 0553 905 | Diode 1SR35-200A | |
| D708-715 | 276 0432 903 | Diode 1SS270A | |
| LE700 | 393 9462 017 | LED SLR-40VC3F (RED) | |
| RESISTOR (Not included Carbon Film $\pm 5\%$ 1/4w) | | | |
| CAPACITORS GROUP | | | |
| C701 | 254 4255 720 | Electrolytic 6800 μ F/16V | CE04W1C682MC(SME) |
| C702,703 | 254 4255 717 | Electrolytic 4700 μ F/16V | CE04W1C472MC(SME) |
| C706 | 254 4254 941 | Electrolytic 100 μ F/16V | CE04W1C101MT(SME) |
| C708 | 253 9036 909 | Ceramic 0.1 μ F/25V | CK45=1E104Z |
| C710,711 | 253 4538 949 | Ceramic 100pF/50V | CC45SL1H101J |
| C712 | 253 9036 909 | Ceramic 0.1 μ F/25V | CK45=1E104Z |
| C720,721 | 253 4538 949 | Ceramic 100pF/50V | CC45SL1H101J |
| C722 | 253 9036 909 | Ceramic 0.1 μ F/25V | CK45=1E104Z |
| OTHERS PARTS GROUP | | | |
| L701-706 | 235 0049 900 | BEADS INDUCTOR | |
| SW700,701 | 212 4763 904 | TACT SWITCH(LONG ST) | |
| SW702 | 212 1039 000 | 1P PUSH SWITCH | |
| F700 | 206 1039 010 | FUSE 0.8A | U.S.A. Canada Model |
| F700 | 206 1031 032 | FUSE 0.16A | Europe, U.K. Model |
| F700 | 206 1015 063 | FUSE 0.5A | Multi- Voltage Model |
| F700 | 202 0040 900 | FUSE CLIP | |
| CB700 | 205 0321 054 | 5P CONN.BASE(RED) | |
| CB701,702 | 205 0581 001 | 2P VFO CONN.BASE | |
| CB704 | 205 0190 052 | 5P NH CONN.BASE | |
| CB705 | 205 0717 008 | 8P MINI DIN CONN.BASE | |
| CB710 | 205 0668 047 | 21P FFC CONN.BASE | |
| CB711 | 204 8373 001 | 2P PIN JACK | |
| CB720 | 205 0668 047 | 21P FFC CONN.BASE | |
| CB721 | 204 8373 001 | 2P PIN JACK | |
| CC700 | 203 8196 034 | 5P KR-DS CONN.CORD | |
| CC706 | 203 4853 001 | 3P DS-DS CONN.CORD | |
| F700 | 206 2086 062 | AC CORD W/CONN | U.S.A. Canada Model |
| F700 | 206 2088 003 | AC CORD W/CONN | Europe, U.K. Model |
| F700 | 206 2090 001 | AC CORD W/CONN | U.K. Model |
| F700 | 206 2088 000 | AC CORD W/CONN | Multi- Voltage Model |
| F700 | 233 5953 008 | POWER TRANS | U.S.A. Canada Model |

| Ref No. | Part No. | Part Name | Remarks |
|---------|--------------|------------------|----------------------|
| F700 | 233 5955 006 | POWER TRANS | Europe Model |
| F700 | 233 5951 003 | POWER TRANS | U.K. Model |
| F700 | 233 5954 007 | POWER TRANS | Multi- Voltage Model |
| F700 | 212 4698 008 | VOLTAGE SELECTOR | Multi- Voltage Model |

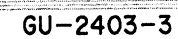
GU-2401 MECHA PWB UNIT

| Ref No. | Part No. | Part Name | Remarks | |
|---|--------------------------|---|---|---|
| SEMICONDUCTORS GROUP | | | | |
| IC001 | 262 1342 006 | IC CXA1372Q(48PQFP) | U.S.A. Model Serial No.~620 Europe Model Serial No.~881 No.886~950 U.K. Model Serial No.~300 Canada Model Serial No.~130 Multi-Voltage Model Serial No.~100 | |
| IC002 | 262 1514 009 | IC CXD2500AQ | | |
| IC003 | 262 1344 907 | IC SN74LS624NSR | | |
| IC004,005 | 263 0615 902 | IC BA15218F | | |
| IC006 | 263 0805 903 | IC BA6296FP | | |
| IC008 | 262 1205 907 | IC TC74HC04AF | | |
| IC200 | 262 1473 001 | IC UPD78233GJ-5BG | | |
| IC200 | 262 1690 004 | IC μPD78234GJ-515-5BG | | U.S.A. Model Serial No.621~ |
| | | | | Europe Model Serial No.882~885 No.951~ |
| | | | | U.K. Model Serial No.301~ |
| | | | Canada Model Serial No.131~ Multi-Voltage Model Serial No.101~ | |
| IC201 | 262 1474 000 | IC UPD6381GF | U.S.A. Model Serial No.~620 Europe Model Serial No.~881 No.886~950 U.K. Model Serial No.~300 Canada Model Serial No.~130 Multi-Voltage Model Serial No.~100 | |
| IC203 | 262 1615 908 | IC V53C104BK | | |
| IC204 | 262 0943 901 | IC HD74HC373FP-TL | | |
| IC205 | 205 0488 010 GEN 2172 | IC 28P IC SOCKET MECHA ROM SUB Ass'y | | U.S.A. Model Serial No.~620 |
| | | | | Europe Model Serial No.~881 No.886~950 |
| | | | | U.K. Model Serial No.~300 |
| | | | | Canada Model Serial No.~130 Multi-Voltage Model Serial No.~100 |
| IC300 | 262 1664 904 | IC CXD2554M | | U.S.A. Model Serial No.~620 Europe Model Serial No.~881 No.886~950 U.K. Model Serial No.~300 Canada Model Serial No.~130 Multi-Voltage Model Serial No.~100 |
| IC301,302 | 262 1409 004 | IC PCM61P-L | | |
| IC303,304 | 263 0615 902 | IC BA15218F | | |
| IC500 | 262 1647 905 | IC MN1382-S(TX) | | |
| TR070 | 274 0036 905 | Transistor 2SD468(C)TF | | |
| | | Transistor 2SB562(C)TF | | |
| | | Transistor DTA114EK | | |
| | | Transistor DTC114EK | | |
| D400 | 276 0533 909 | Diode MA3047-TX | | |
| RESISTORS GROUP (Not included Carbon Film ±5% 1/4W) | | | | |
| R020 | 247 0010 987 | Chip 27Kohm 1/10W | RM73B~273J | |
| R021 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B~104J | |
| R022 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B~103J | |

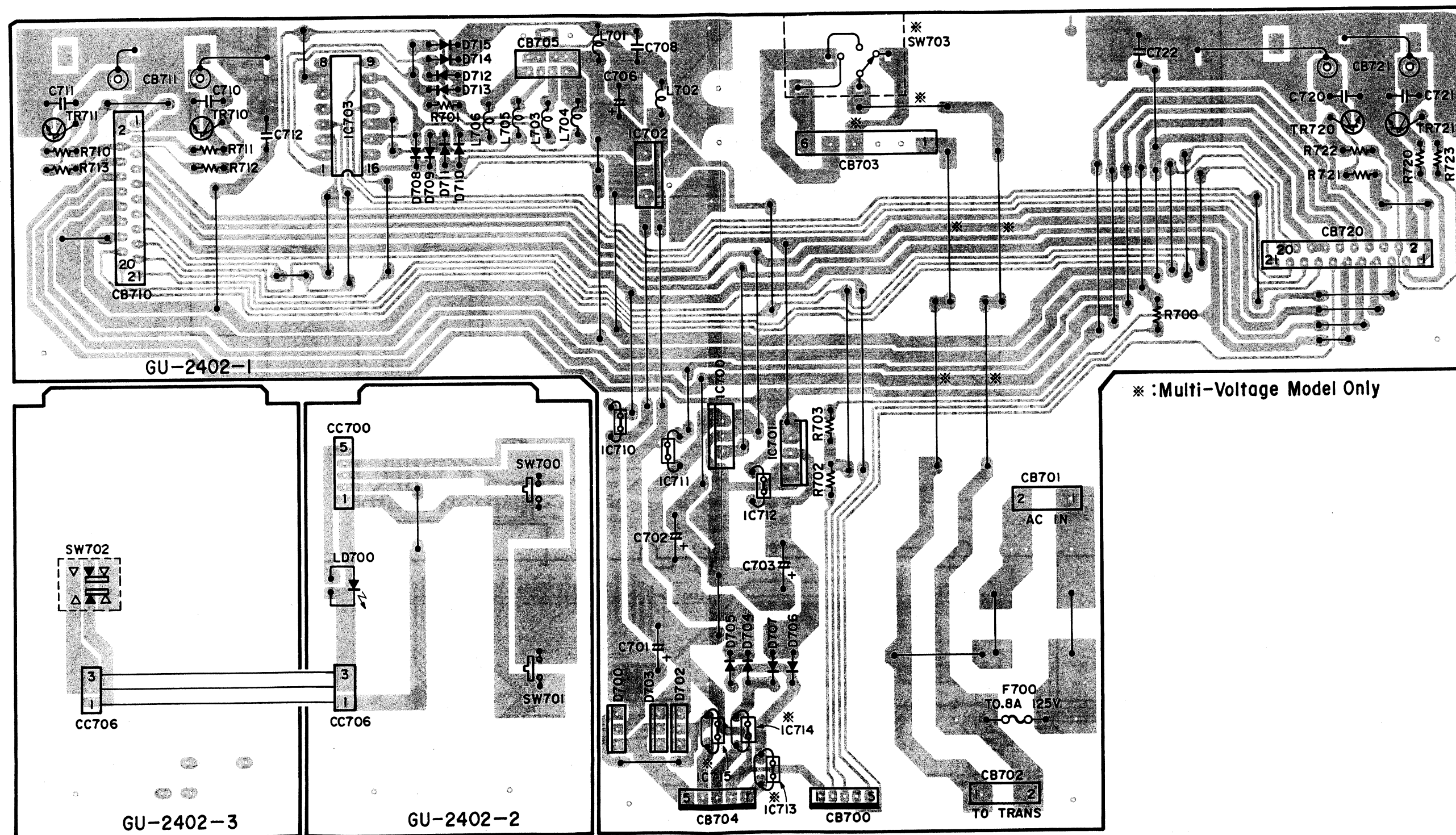
| Ref No. | Part No. | Part Name | Remarks |
|----------|--------------|--------------------|-----------------------------|
| R023 | 247 0012 930 | Chip 110Kohm 1/10W | RM73B-114J |
| R024,025 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R026 | 247 0011 960 | Chip 56Kohm 1/10W | RM73B-563J |
| R027 | 247 0011 928 | Chip 39Kohm 1/10W | RM73B-393J |
| R028 | 247 0009 956 | Chip 7.5Kohm 1/10W | RM73B-752J |
| R030 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R031 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R034 | 247 0012 943 | Chip 120Kohm 1/10W | RM73B-124J |
| R038 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R039 | 247 0012 914 | Chip 91Kohm 1/10W | RM73B-913J |
| R040 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R043 | 247 0011 986 | Chip 68Kohm 1/10W | RM73B-683J |
| R044 | 247 0009 969 | Chip 8.2Kohm 1/10W | RM73B-822J |
| R045 | 247 0014 925 | Chip 680Kohm 1/10W | RM73B-684J |
| R046 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R047 | 247 0012 943 | Chip 120Kohm 1/10W | RM73B-124J |
| R050,051 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R052 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R053 | 247 0009 956 | Chip 7.5Kohm 1/10W | RM73B-752J |
| R054 | 247 0008 931 | Chip 2.4Kohm 1/10W | RM73B-242J |
| R055 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R056 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R057 | 247 0012 914 | Chip 91Kohm 1/10W | RM73B-913J |
| R059 | 247 0005 989 | Chip 220ohm 1/10W | RM73B-221J |
| R060 | 247 0009 901 | Chip 4.7Kohm 1/10W | RM73B-472J |
| R061 | 247 0006 962 | Chip 470ohm 1/10W | RM73B-471J |
| R062 | 247 0011 902 | Chip 33Kohm 1/10W | RM73B-333J |
| R063 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R064 | 247 0008 960 | Chip 3.3Kohm 1/10W | RM73B-332J |
| R065 | 247 0009 943 | Chip 6.8Kohm 1/10W | RM73B-682J |
| R066 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R067 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R068 | 247 0010 929 | Chip 15Kohm 1/10W | RM73B-153J |
| R069 | 247 0010 916 | Chip 13Kohm 1/10W | RM73B-133J |
| R079 | 244 2051 945 | Metallic 1ohm 1W | RS14B3A01JNB ST(S) |
| R080-083 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R084 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R200 | 247 0009 985 | Chip 10Kohm 1/10W | U.S.A. Model Serial No.-620 |
| | | | Europe Model Serial No.-881 |
| | | | No.886-950 |
| | | | U.K. Model Serial No.-300 |
| | | | Canada Model Serial No.-130 |
| | | | Multi-Voltage Model |
| | | | Serial No.-100 |
| | | | |
| | | | |
| | | | |
| R202 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R203 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R205 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R250 | 247 0008 902 | Chip 1.8Kohm 1/10W | RM73B-182J |
| R303 | 247 0018 905 | Chip 0ohm Jumper | RM73B-0R0K |
| R304 | 247 0007 945 | Chip 1Kohm 1/10W | RM73B-102J |
| R305,306 | 247 0007 945 | Chip 1Kohm 1/10W | RM73B-102J |
| R310 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R311 | 247 0014 967 | Chip 1Mohm 1/10W | RM73B-105J |
| R312 | 247 0013 984 | Chip 470Kohm 1/10W | RM73B-474J |
| R313 | 247 0012 998 | Chip 200Kohm 1/10W | RM73B-204J |
| R314 | 247 0009 998 | Chip 11Kohm 1/10W | RM73B-113J |

| Ref No. | Part No. | Part Name | Remarks |
|------------------|--------------|-----------------------------|------------------|
| R315 | 247 0009 927 | Chip 5.6Kohm 1/10W | RM73B-562J |
| R316 | 247 0009 998 | Chip 11Kohm 1/10W | RM73B-113J |
| R317 | 247 0010 945 | Chip 18Kohm 1/10W | RM73B-183J |
| R318 | 247 0010 958 | Chip 20Kohm 1/10W | RM73B-203J |
| R319 | 247 0010 990 | Chip 30Kohm 1/10W | RM73B-303J |
| R330 | 247 0011 944 | Chip 47Kohm 1/10W | RM73B-473J |
| R331 | 247 0014 967 | Chip 1Mohm 1/10W | RM73B-105J |
| R332 | 247 0013 984 | Chip 470Kohm 1/10W | RM73B-474J |
| R333 | 247 0012 998 | Chip 200Kohm 1/10W | RM73B-204J |
| R334 | 247 0009 998 | Chip 11Kohm 1/10W | RM73B-113J |
| R335 | 247 0009 927 | Chip 5.6Kohm 1/10W | RM73B-562J |
| R336 | 247 0009 998 | Chip 11Kohm 1/10W | RM73B-113J |
| R337 | 247 0010 945 | Chip 18Kohm 1/10W | RM73B-183J |
| R338 | 247 0010 958 | Chip 20Kohm 1/10W | RM73B-203J |
| R339 | 247 0010 990 | Chip 30Kohm 1/10W | RM73B-303J |
| R350 | 247 0007 945 | Chip 1Kohm 1/10W | RM73B-102J |
| R351 | 247 0008 960 | Chip 3.3Kohm 1/10W | RM73B-332J |
| R402 | 247 0012 969 | Chip 150Kohm 1/10W | RM73B-154J |
| R500,501 | 247 0011 902 | Chip 33Kohm 1/10W | RM73B-333J |
| R502,503 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R600 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R601,602 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R603 | 247 0009 985 | Chip 10Kohm 1/10W | RM73B-103J |
| R607 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R608 | 247 0009 901 | Chip 4.7Kohm 1/10W | RM73B-472J |
| R609 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| R700 | 247 0009 998 | Chip 11Kohm 1/10W | RM73B-113J |
| R701 | 247 0008 915 | Chip 2Kohm 1/10W | RM73B-202J |
| R702 | 247 0006 917 | Chip 300ohm 1/10W | RM73B-301J |
| R703 | 247 0007 945 | Chip 1Kohm 1/10W | RM73B-102J |
| R704 | 247 0012 927 | Chip 100Kohm 1/10W | RM73B-104J |
| VR001,002 | 211 6086 903 | Semi Fixed Resistor 22Kohm | V04PB203M(RVG4M) |
| VR300,301 | 211 6077 938 | Semi Fixed Resistor 100Kohm | V06PB104 |
| CAPACITORS GROUP | | | |
| C001 | 254 4430 008 | Electrolytic 1000μF/6.3V | CE04WQJ102M(KMG) |
| C002 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C010 | 257 0010 900 | Ceramic-chip 0.01μF/50V | CK73B1H103K |
| C011 | 257 0009 937 | Ceramic-chip 2700pF/50V | CK73B1H272K |
| C012 | 257 0010 900 | Ceramic-chip 0.01μF/50V | CK73B1H103K |
| C013 | 257 1010 941 | Ceramic-chip 3300pF/50V | CK73B1H332K |
| C014 | 257 0006 943 | Ceramic-chip 560pF/50V | CC73SL1H561J |
| C015 | 257 1013 951 | Ceramic-chip 0.047μF/25V | CK73B1E473K |
| C016 | 257 1013 993 | Ceramic-chip 0.1μF/25V | CK73B1E104K |
| C017 | 257 1013 951 | Ceramic-chip 0.047μF/25V | CK73B1E473K |
| C018 | 257 0009 924 | Ceramic-chip 2200pF/50V | CK73B1H222K |
| C019 | 257 1013 993 | Ceramic-chip 0.1μF/25V | CK73B1E104K |
| C020 | 257 1013 980 | Ceramic-chip 0.082μF/25V | CK73B1E823K |
| C021 | 257 1011 966 | Ceramic-chip 0.033μF/50V | CK73B1H333K |
| C022 | 257 0004 961 | Ceramic-chip 100pF/50V | CC73SL1H101J |
| C024 | 254 4304 930 | Electrolytic 6.8μF/35V | CE04W1V6R8M(SRE) |
| C025 | 256 1035 910 | Metallize 0.22μF/50V | CF93A1H224J |
| C026 | 257 0003 991 | Ceramic-chip 51pF/50V | CC73SL1H510J |
| C027 | 257 1013 993 | Ceramic-chip 0.1μF/25V | CK73B1E104K |
| C028 | 254 4304 927 | Electrolytic 4.7μF/35V | CE04W1V4R7M(SRE) |

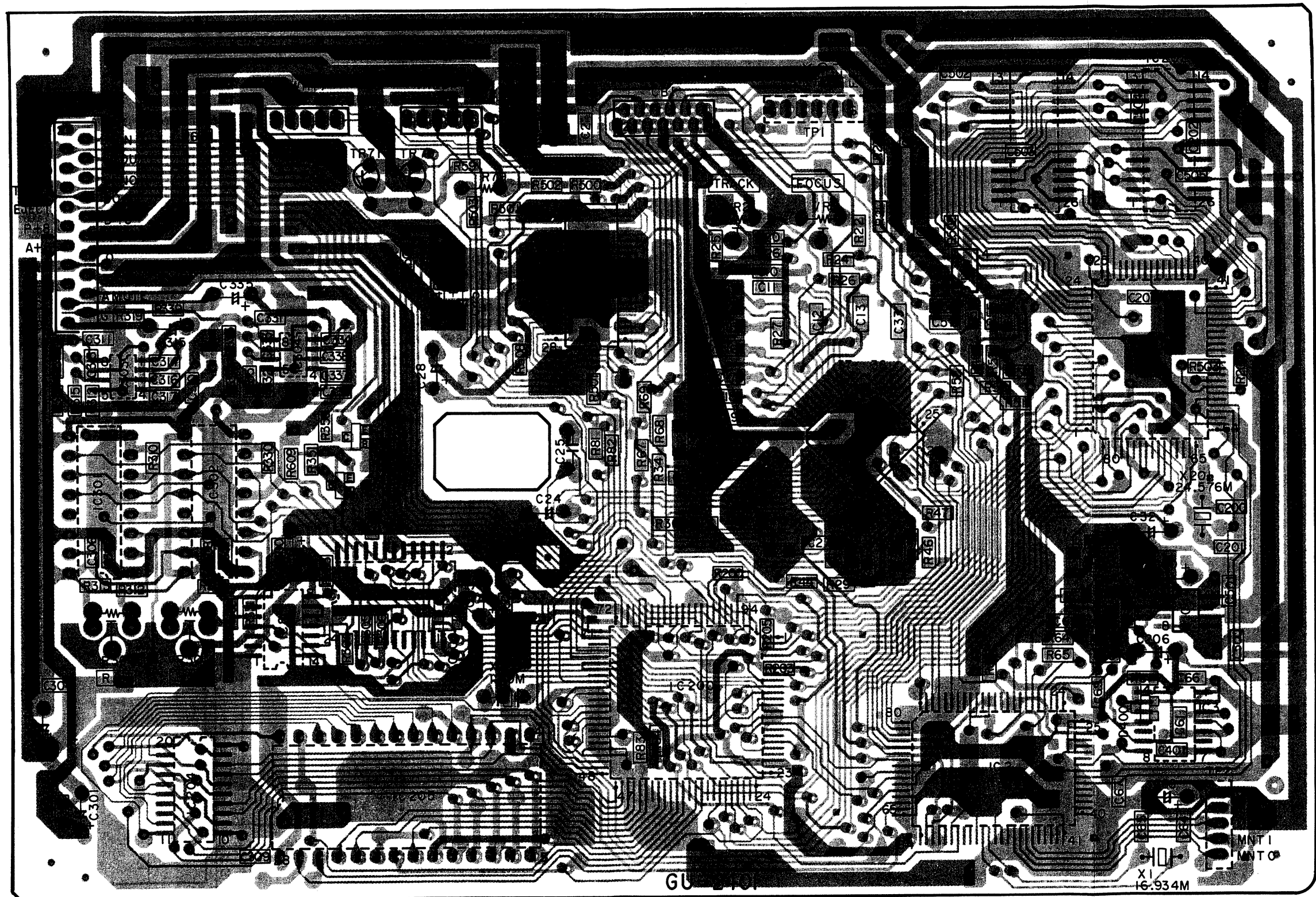
| Ref No. | Part No. | Part Name | Remarks |
|--------------------|--------------|--------------------------|------------------|
| C029 | 257 0004 961 | Ceramic-chip 100pF/50V | CC73SL1H101J |
| C030,031 | 257 0012 966 | Ceramic-chip 0.01μF/50V | CK73F1H103Z |
| C032 | 254 4305 926 | Electrolytic 0.22μF/50V | CE04W1HR22M(SRE) |
| C033 | 257 1011 966 | Ceramic-chip 0.033μF/50V | CK73B1H333K |
| C040,041 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C044 | 257 0010 900 | Ceramic-chip 0.01μF/50V | CK73B1H103K |
| C045 | 254 4299 964 | Electrolytic 47μF/16V | CE04W1C470M(SRE) |
| C046 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C051 | 257 0004 961 | Ceramic-chip 100μF/50V | CC73SL1H101J |
| C060 | 254 4305 926 | Electrolytic 0.22μF/50V | CE04W1HR22M(SRE) |
| C061 | 257 0002 989 | Ceramic-chip 18pF/50V | CC73SL1H180J |
| C062 | 257 1013 951 | Ceramic-chip 0.047μF/25V | CK73B1E473K |
| C063 | 257 0007 942 | Ceramic-chip 1500pF/50V | CC73SL1H152J |
| C064 | 257 0001 951 | Ceramic-chip 3pF/50V | CC73SL1H3R0C |
| C065 | 257 0001 977 | Ceramic-chip 5pF/50V | CC73SL1H5R0C |
| C066 | 254 4300 963 | Electrolytic 100μF/6.3V | CE04WQJ101M(SRE) |
| C067-069 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C104 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C200,201 | 257 0003 904 | Ceramic-chip 22pF/50V | CC73SL1H220J |
| C202,203 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C205 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C206,207 | 254 4300 963 | Electrolytic 100μF/6.3V | CE04WQJ101M(SRE) |
| C253 | 254 4300 934 | Electrolytic 22μF/6.3V | CE04WQJ220M(SRE) |
| C300 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C301 | 254 4300 963 | Electrolytic 100μF/6.3V | CE04WQJ101M(SRE) |
| C302 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C303 | 254 4300 963 | Electrolytic 100μF/6.3V | CE04WQJ101M(SRE) |
| C304 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C305,306 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C307 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C308,309 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C310,311 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C312 | 257 0007 926 | Ceramic-chip 1200pF/50V | CC73SLH 122J |
| C313 | 257 0005 931 | Ceramic-chip 200pF/50V | CC73SLH201J |
| C314 | 257 0002 992 | Ceramic-chip 20pF/50V | CC73SLH200J |
| C315 | 254 4306 925 | Electrolytic 10μF/50V | CE04W1H100M(SRE) |
| C330,331 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C332 | 257 0007 926 | Ceramic-chip 1200pF/50V | CC73SLH 122J |
| C333 | 257 0005 931 | Ceramic-chip 200pF/50V | CC73SLH201J |
| C334 | 257 0002 992 | Ceramic-chip 20pF/50V | CC73SLH200J |
| C335 | 254 4306 925 | Electrolytic 10μF/50V | CE04W1H100M(SRE) |
| C401 | 257 0004 961 | Ceramic-chip 100pF/50V | CC73SLH 101J |
| C500-505 | 257 0014 935 | Ceramic-chip 0.1μF/25V | CK73F1E104Z |
| C700 | 257 0013 907 | Ceramic-chip 0.047μF/50V | CK73F1E473Z |
| OTHERS PARTS GROUP | | | |
| X001 | 399 0036 013 | CRYSTAL | 16.9344MHz |
| X200 | 399 0038 008 | CERAMIC VIBRATOR | CST12.0M |
| X201 | 399 0174 001 | CRYSTAL | 24.576MHz |
| CB001 | 205 0681 008 | 12P FFC SIDE BASE | |
| CB002 | 205 0395 051 | 5P CONN.BASE (RED) L | |
| CB003 | 205 0355 059 | 5P KR CONN.BASE(L) | |
| CB004 | 205 0702 039 | 21P FFC CONN.BASE(L) | |
| TP001 | 205 0355 062 | 6P KR CONN. BASE(L) | |
| | 009 0079 009 | 21P FFC | |



GU-2402 MAIN UNIT



GU-2401 MECHA UNIT



PARTS LIST OF EXPLODED VIEW

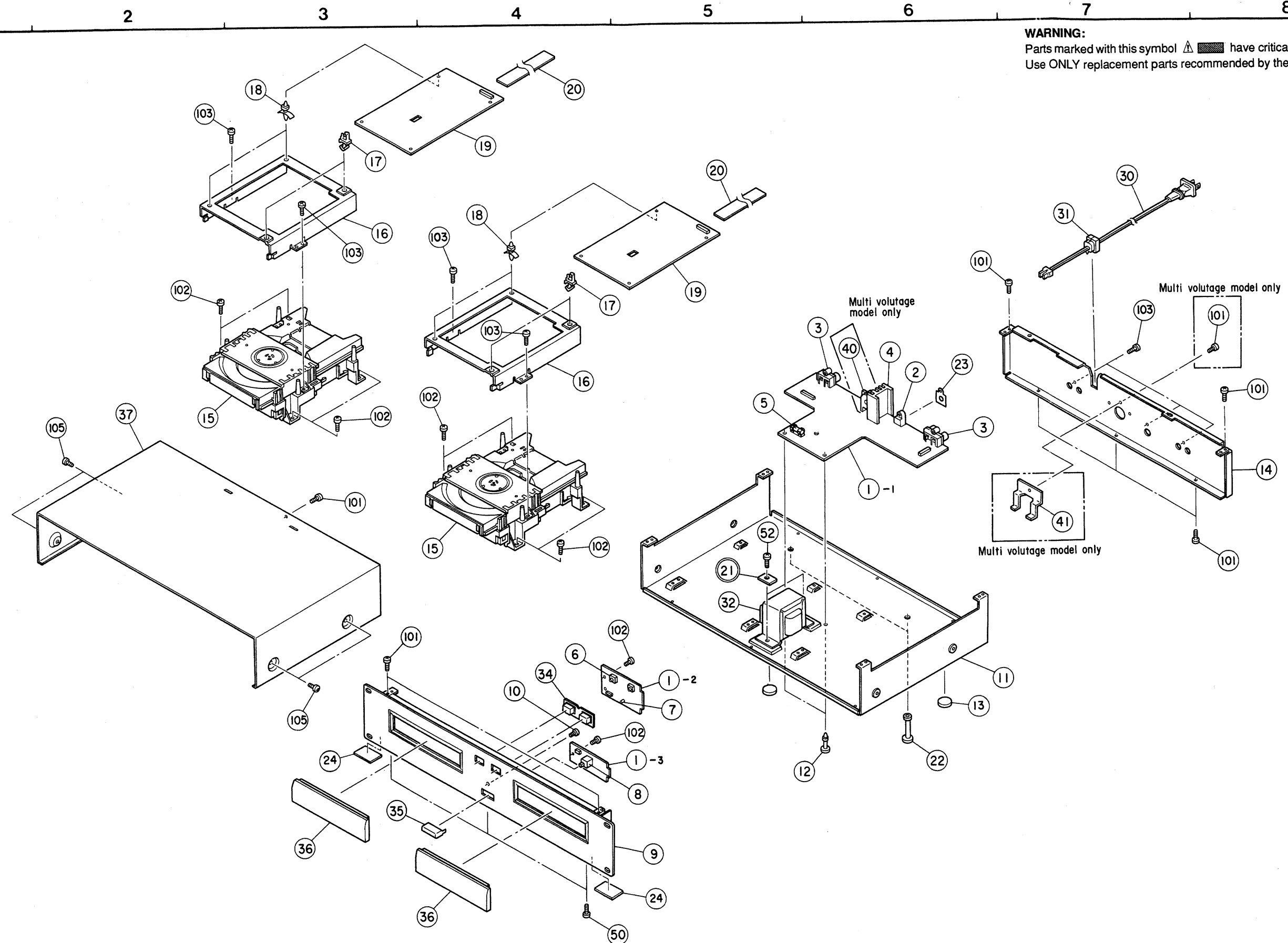
PACKING AND ACCESSORIES
(not included EXPLODED VIEW)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty |
|----------|--------------|-----------------------|-------------------------|------|
| ◎ 1 | GU-2402 | MAIN PWB UNIT | | 1 |
| 1-1 | GU-2402-1 | MAIN PWB UNIT | | 1 |
| 1-2 | GU-2402-2 | PANEL PWB UNIT | | 1 |
| 1-3 | GU-2402-3 | PANEL PWB UNIT | | 2 |
| 2 | 205 0717 008 | 8P MINI DIN CON. BASE | | 1 |
| 3 | 204 8373 001 | 2P PIN JACK | | 2 |
| ◎ 4 | 417 0462 105 | HEAT SINK | | 1 |
| | | | | |
| 6 | 212 4763 904 | TACT SWITCH (LONG ST) | | 2 |
| 7 | 393 9462 017 | LED (RED) | SLR-40VC3F | 1 |
| 8 | 212 1039 000 | 1P PUSH SWITCH | | 1 |
| ◎ 9 | 144 2189 106 | FRONT PANEL Ass'y | | 1 |
| ◎ 10 | 146 1371 005 | LED WINDOW | | 1 |
| ◎ 11 | 411 1422 201 | CHASSIS | | 1 |
| ◎ 12 | 499 0074 008 | LOCKING CARD SPACER | | 2 |
| 13 | 461 0706 101 | FOOT SHEET | | 2 |
| ◎ 14 | 105 1029 000 | BACK PANEL | U.S.A. And Canada Model | 1 |
| ◎ | 105 1029 123 | BACK PANEL | Europe Model | 1 |
| ◎ | 105 1029 123 | BACK PANEL | U.K. Model | 1 |
| ◎ | 105 1029 110 | BACK PANEL | Multi-Voltage Model | 1 |
| ◎ 15 | FG- 50 | CD MECHA.UNIT | | 2 |
| ◎ 16 | 412 3495 200 | P.W.B. BASE | | 2 |
| ◎ 17 | 499 0063 006 | PIERCE HOLD | | 4 |
| ◎ 18 | 449 0033 049 | LOCKING CARD SPACER | | 4 |
| ◎ 19 | GU- 2401 | MECHA PWB UNIT | | 1 |
| 20 | 009 0079 009 | 21P FFC | | 2 |
| 21 | WA- 0120 H | WASHER | | 2 |
| ◎ 22 | 449 0077 005 | CARD SPACER | | 2 |
| ◎ 23 | 412 3555 108 | EARTH PLATE | | 1 |
| 24 | 461 0740 002 | SHEET | | 2 |
| 25 | — | | | |
| | | | | |
| 33 | — | | | |
| 34 | 119 0069 109 | RUBBER BUTTON (B) | | 1 |
| 35 | 113 1357 207 | POWER SW.BUTTON | | 1 |
| ◎ 36 | 146 9238 140 | LOADER PANEL | | 2 |
| ◎ 37 | 102 0425 101 | TOP COVER | | 1 |
| | | | | |
| ◎ 41 | 411 1143 001 | SELECTOR BRACKET | Multi-Voltage Model | 1 |
| | | | | |
| SCREWS | | | | |
| 101 | 473 7015 005 | TAPPING SCREW 3×6 (S) | Black | 11 |
| 102 | 473 7002 005 | TAPPING SCREW 3×6 (S) | Black | 10 |
| 103 | 473 7508 017 | TAPPING SCREW 3×10(P) | Black | 7 |
| 104 | 473 7004 003 | TAPPING SCREW 4×8 (S) | Black | 2 |
| 105 | 477 0263 005 | 3P SWELLING SCREW | Black | 4 |

| Ref. No. | Part No. | Part Name | Remarks | Q'ty |
|----------|--------------|---------------------|---|------|
| 301 | 505 0061 010 | ENVELOPE | | 1 |
| 302 | 511 2322 105 | INST.MANUAL | U.S.A. Model U.K. Model Multi-Voltage Model | 1 |
| | | | | |
| 303 | 511 2347 106 | INST.MANUAL | Canada And Europe Model | 1 |
| | | | | |
| 304 | 515 0474 002 | DAI WARRANTY ROM | U.S.A. Model | 1 |
| 305 | 515 0436 008 | DCI WARRANTY | Canada Model | 1 |
| 306 | 204 2518 008 | 8P MD.CORD | | 1 |
| 307 | 203 6305 007 | 2P PIN CORD | | 2 |
| 308 | 505 0102 092 | STYRENE PAPER | | 1 |
| 309 | 505 0099 008 | POLY COVER | | 1 |
| 310 | 505 0099 082 | POLY COVER | | 1 |
| 311 | 412 3556 000 | CONNECTING BRACKET | | 2 |
| 312 | 477 0053 040 | WASHER | | 8 |
| 313 | 471 3505 021 | SCREW 5×10 | | 8 |
| 314 | 503 1001 206 | CUSHION | | 2 |
| 315 | RC-35 | REMOTE CONTROL UNIT | | 1 |
| 316 | 505 1012 021 | STYRENE PAPER | | 1 |
| 317 | 503 1010 103 | CUSHION(RC) | Remote Control Unit | 2 |
| 318 | 501 1527 137 | CARTON CASE | | 1 |

● Part indicated with the mark " ◎ " are not always in stock and possibly to take a long period of time for supplying or in some case supplying of part may be refused.

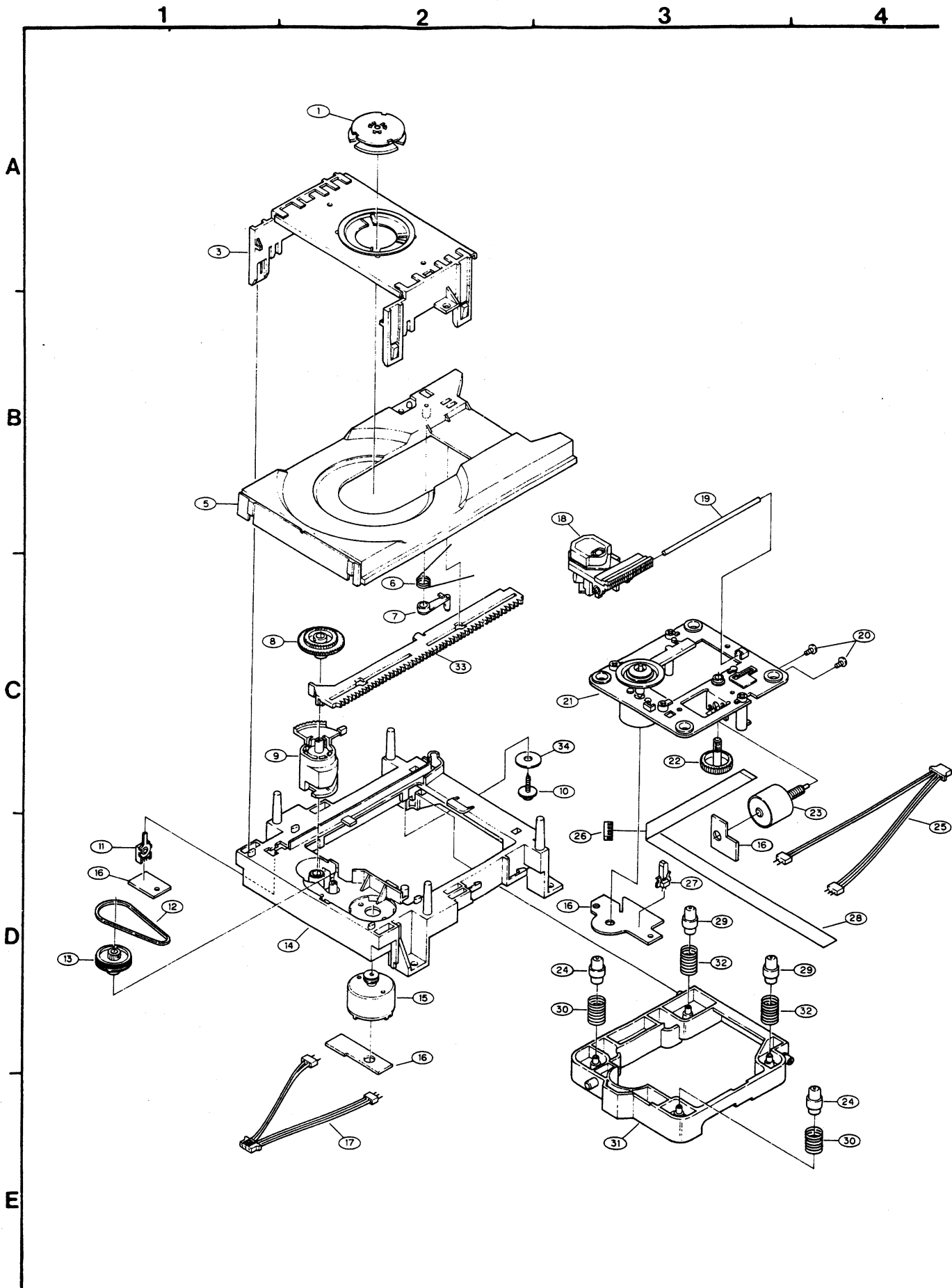
EXPLODED VIEW OF CHASSIS AND CABINET



PARTS LIST OF FG-50 MECHANISM UNIT

| Ref. No. | Partr No. | Part Name | Remarks |
|----------|--------------|-------------------------|----------|
| 1 | GEN 1396 | Clamper Press Sub Ass'y | |
| ⊙ 3 | 412 3133 006 | Clamper Frame | |
| 5 | 431 0300 302 | Loader Frame | |
| 6 | 463 0669 008 | Lock Lever Spring | |
| 7 | 412 3215 202 | Lock Lever | |
| 8 | 424 0162 005 | Gear | |
| 9 | 424 0160 104 | Lift Cam | |
| 10 | 477 0262 006 | Special Screw | |
| 11 | 212 1059 006 | Open/Close SW. | |
| 12 | 423 0056 011 | Belt | |
| 13 | 424 0161 103 | Pulley Gear | |
| ⊙ 14 | 411 1019 300 | Mecha. Chassis | |
| 15 | GEN 1492 | L. Motor Sub Ass'y | |
| 16 | 222 2275 006 | Motor SW. P.W.B. | |
| 17 | 203 8302 008 | 5-3, 2P PH-SAN CORD-R | |
| 18 | 499 0191 009 | Laser P.U | KSS-240A |
| 19 | 443 1094 005 | P.U. Shaft | |
| 20 | 471 3801 039 | 2x3 CBS-Z | |
| 21 | GEN 1636 | Spindle Motor Ass'y | |
| 22 | 424 0164 003 | Helical Gear | |
| 23 | GEN 1397 | Slide Motor Sub Ass'y | |
| 24 | 462 0078 104 | Damper | |
| 25 | 203 8301 009 | 5-3, 2P PH-SAN CORD-W | |
| 26 | 443 1093 006 | FFC Clamper | |
| 27 | 212 6013 005 | Inner SW. (PU) | |
| 28 | 009 0051 001 | 12P FFC | |
| 29 | 462 0078 117 | Damper | |
| 30 | 463 0583 100 | Spring (F) | |
| ⊙ 31 | GEN 1408 | Mecha. Frame Sub Ass'y | |
| 32 | 461 0661 000 | Spring F. (R) | |
| 33 | 435 0117 403 | Slide Rack | |
| ⊙ 34 | 462 0113 014 | Rubber Washer | |

PARTS LIST OF FG-50 MECHA UNIT

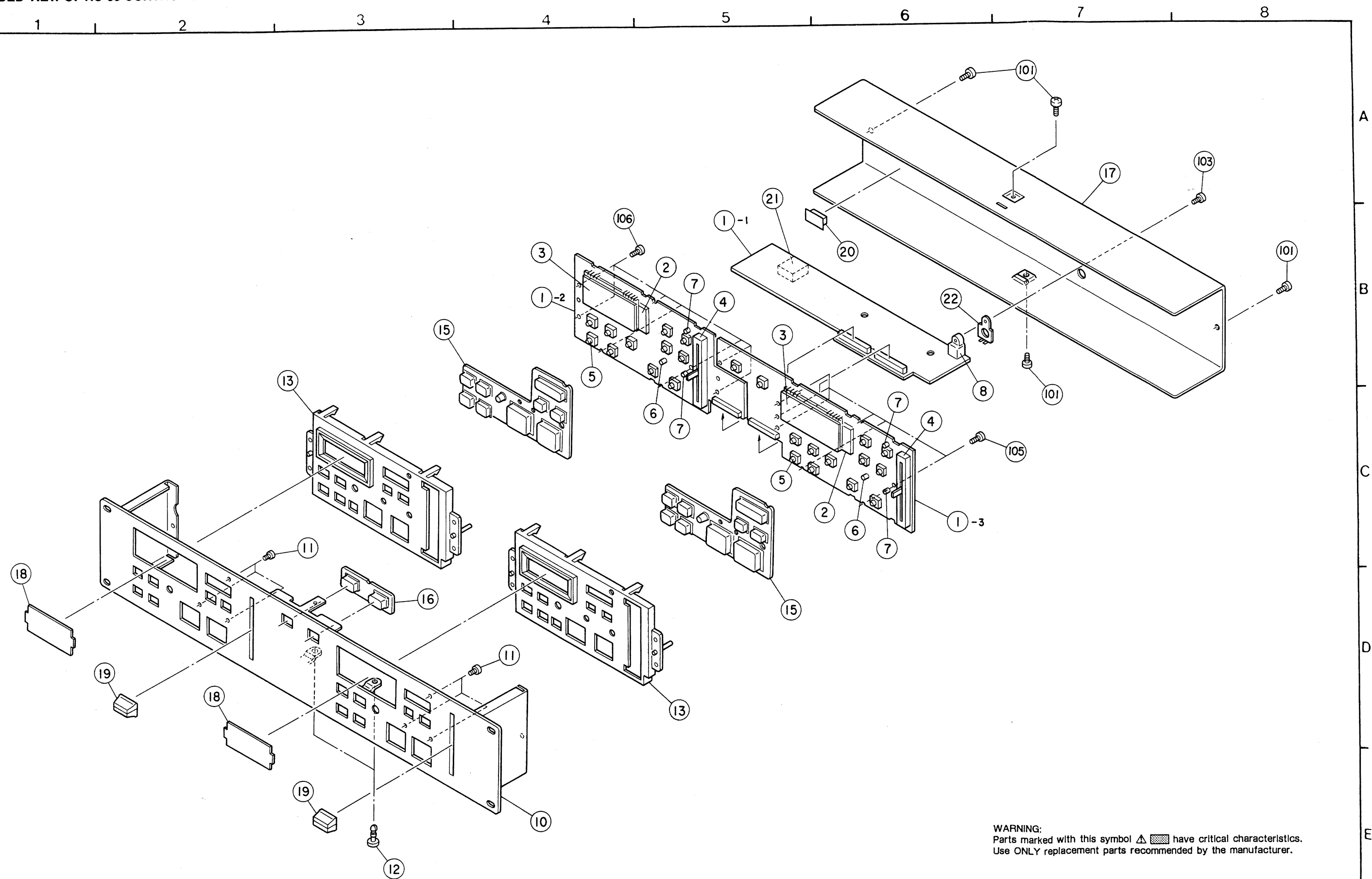


PART LIST OF RC-35 CONTROL UNIT

| Ref. No. | Part No. | Part Name | Remarks | Q'ty |
|----------|--------------|-----------------------|------------|------|
| ⊙ 1 | GU- 2403 | CONTROL PWB UNIT | | 1 |
| 1-1 | GU- 2403 -1 | CPU PWB UNIT | | |
| 1-2 | GU- 2403 -2 | LEFT PWB UNIT | | |
| 1-3 | GU- 2403 -3 | RIGHT PWB UNIT | | |
| 2 | 393 9511 104 | LED BACK LIGHT | | 1 |
| 3 | 393 4139 002 | LCD | | 2 |
| 4 | 211 0763 015 | SLIDE VOLUME | | 2 |
| 5 | 212 4763 904 | TACT SWITCH(LONG ST) | | 24 |
| 6 | 393 9462 017 | LED (RED) | SLR-40VC3F | 2 |
| 7 | 393 9512 006 | LED (GRN) | SLR-40MC | 4 |
| 8 | 205 0717 008 | 8P MINI DIN CONN.BASE | | 1 |
| 9 | — | | | |
| ⊙ 10 | 144 2191 107 | RC FRONT PANEL ASS'Y | | 1 |
| ⊙ 11 | 146 1371 005 | LED WINDOW | | 6 |
| ⊙ 12 | 449 0074 011 | LOCKING CARD SPACER | | 2 |
| ⊙ 13 | 146 1369 101 | INNER PANEL | | 2 |
| 14 | — | | | |
| 15 | 119 0068 100 | RUBBER BUTTON (A) | | 2 |
| 16 | 119 0069 109 | RUBBER BUTTON (B) | | 1 |
| ⊙ 17 | 105 1030 109 | COVER | | 1 |
| ⊙ 18 | 146 1370 200 | WINDOW | | 2 |
| 19 | 113 1523 002 | SLIDE KNOB | | 2 |
| ⊙ 20 | 461 0653 005 | CUSHION (M) | | 1 |
| ⊙ 21 | 461 0504 002 | PAD | | 1 |
| ⊙ 22 | 412 3555 108 | EARTH PLATE | | 1 |
| 101 | 473 7015 005 | TAPPING SCREW 3x6 (S) | Black | 4 |
| 103 | 473 7508 017 | TAPPING SCREW 3x10(P) | Black | 1 |
| 105 | 473 7500 015 | TAPPING SCREW 3x8 (P) | | 8 |
| 106 | 473 7002 021 | TAPPING SCREW 3x8 (S) | Black | 8 |

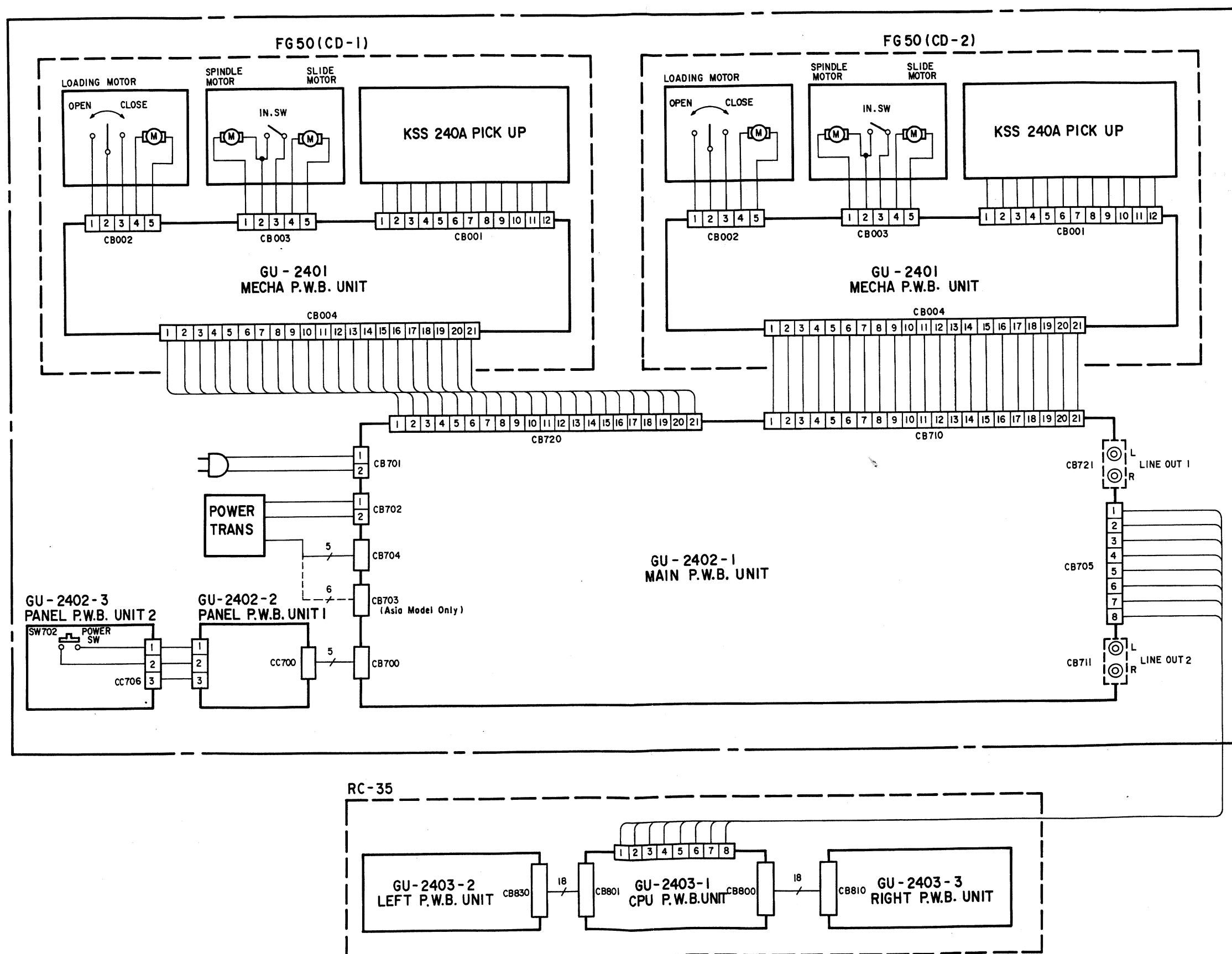
● Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.

EXPLODED VIEW OF RC-35 CONTROL UNIT



WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

WIRING DIAGRAM



SCHEMATIC DIAGRAM GU-2403 CONTROL P.W.B. UNIT

1

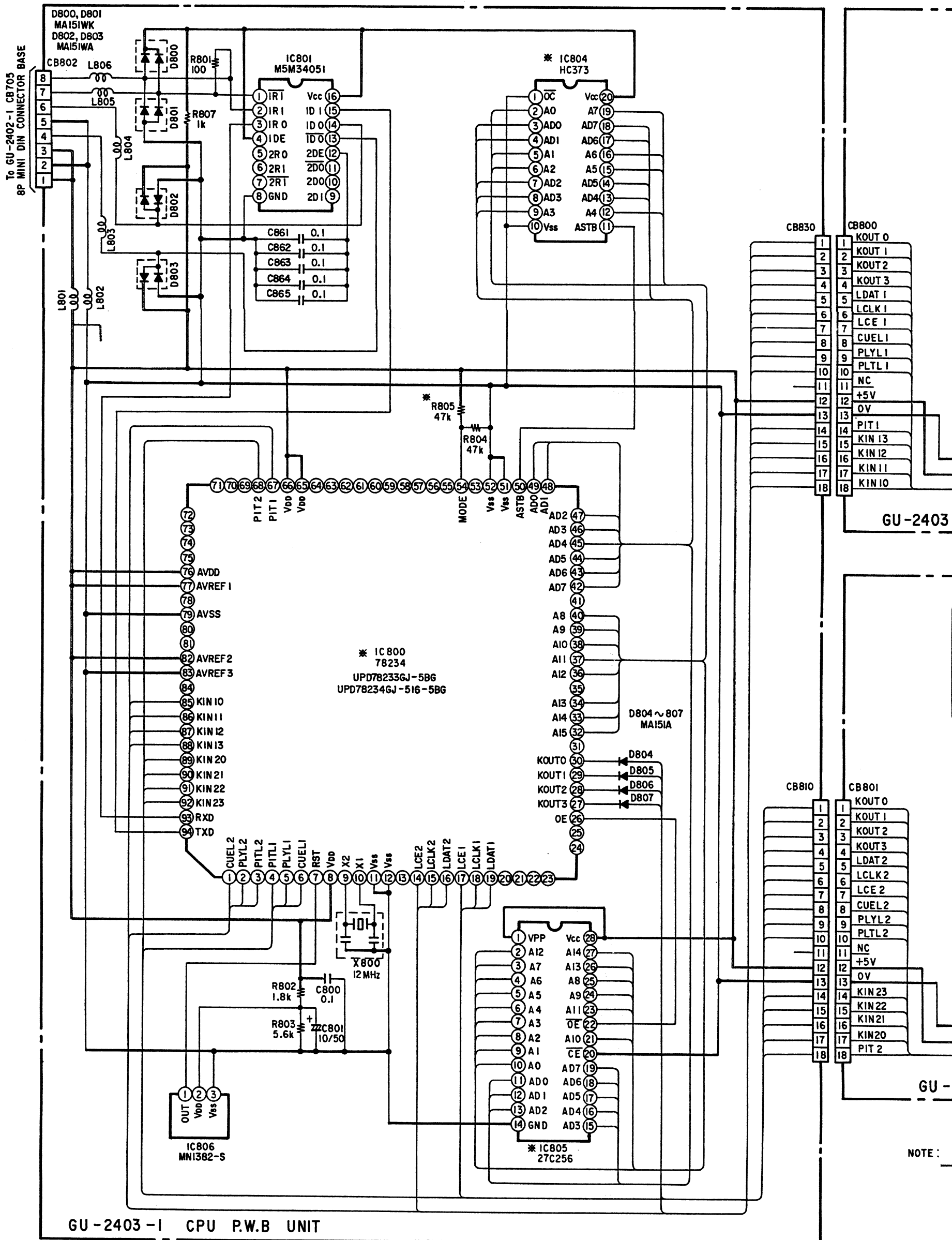
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3

4

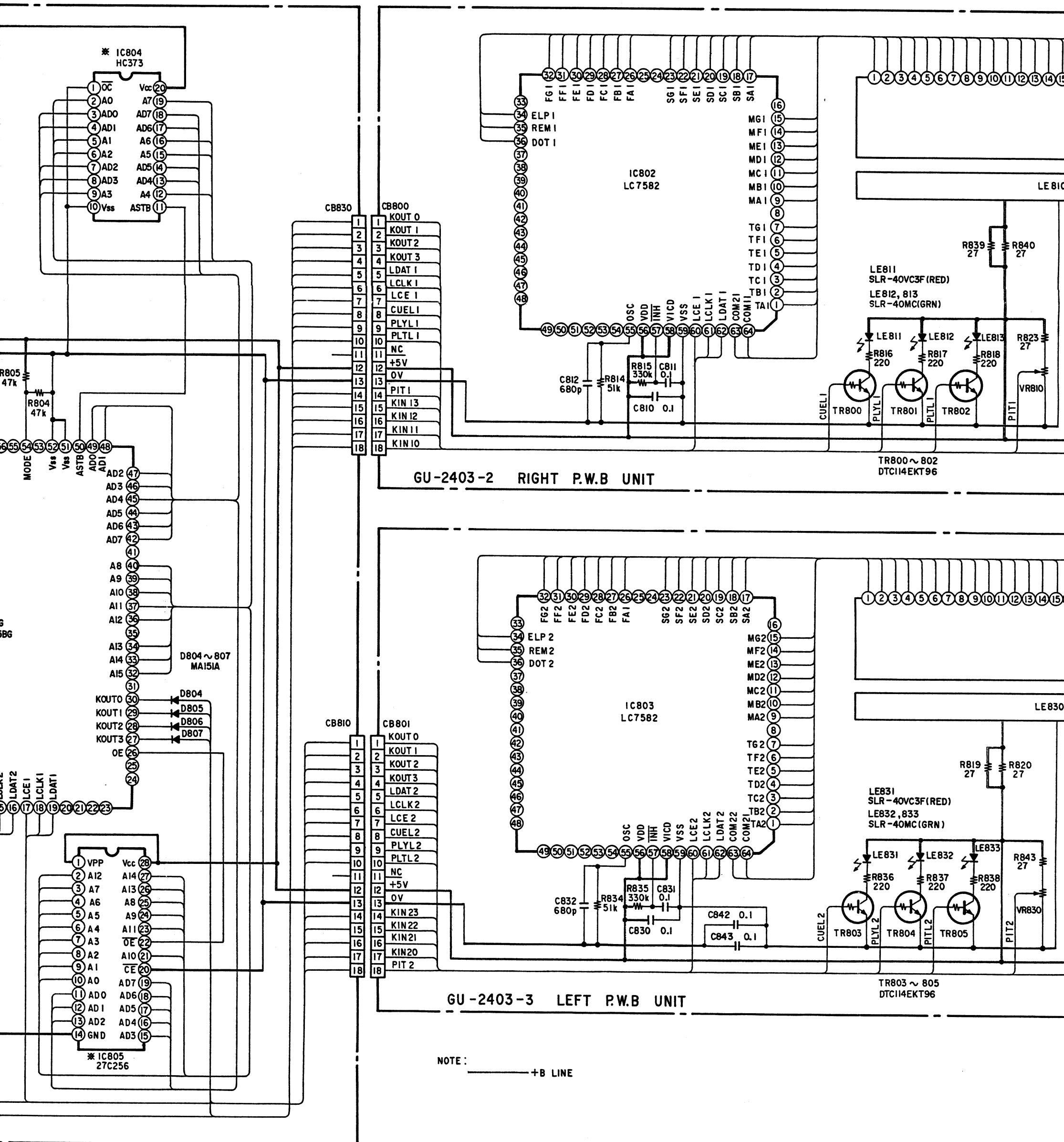
5

6



* For serial numbers of U.S.A. Model after No.621, of Europe Model up to No.882-885 and after No.951, of U.K. Model after No. 301, of Canada Model after No.131, and of Multi-Voltage Model after No.101, IC800 becomes UPD78234 GJ-516-5BG by CPU masking and makes IC804, IC805, R805 unnecessary.

NOTES
ALL RESISTANCE VALUES IN OHMS
ALL CAPACITANCE VALUES IN MICROFARADS
EACH VOLTAGE AND CURRENT VALUE
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT NOTICE



up to No.882-885 and after No.951, of U.K. Model after
al after No.101, IC800 becomes UPD78234 GJ-516-5BG by

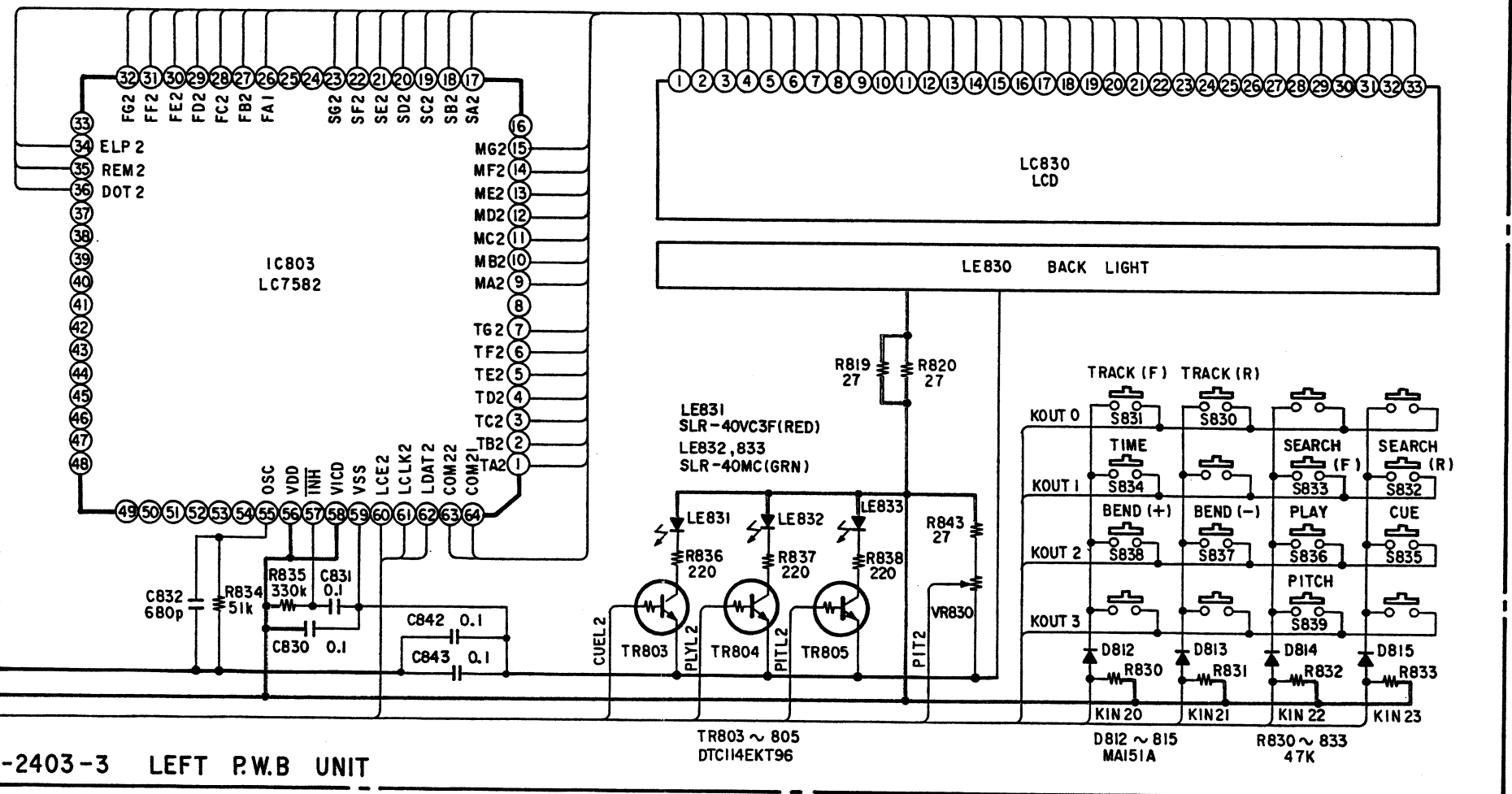
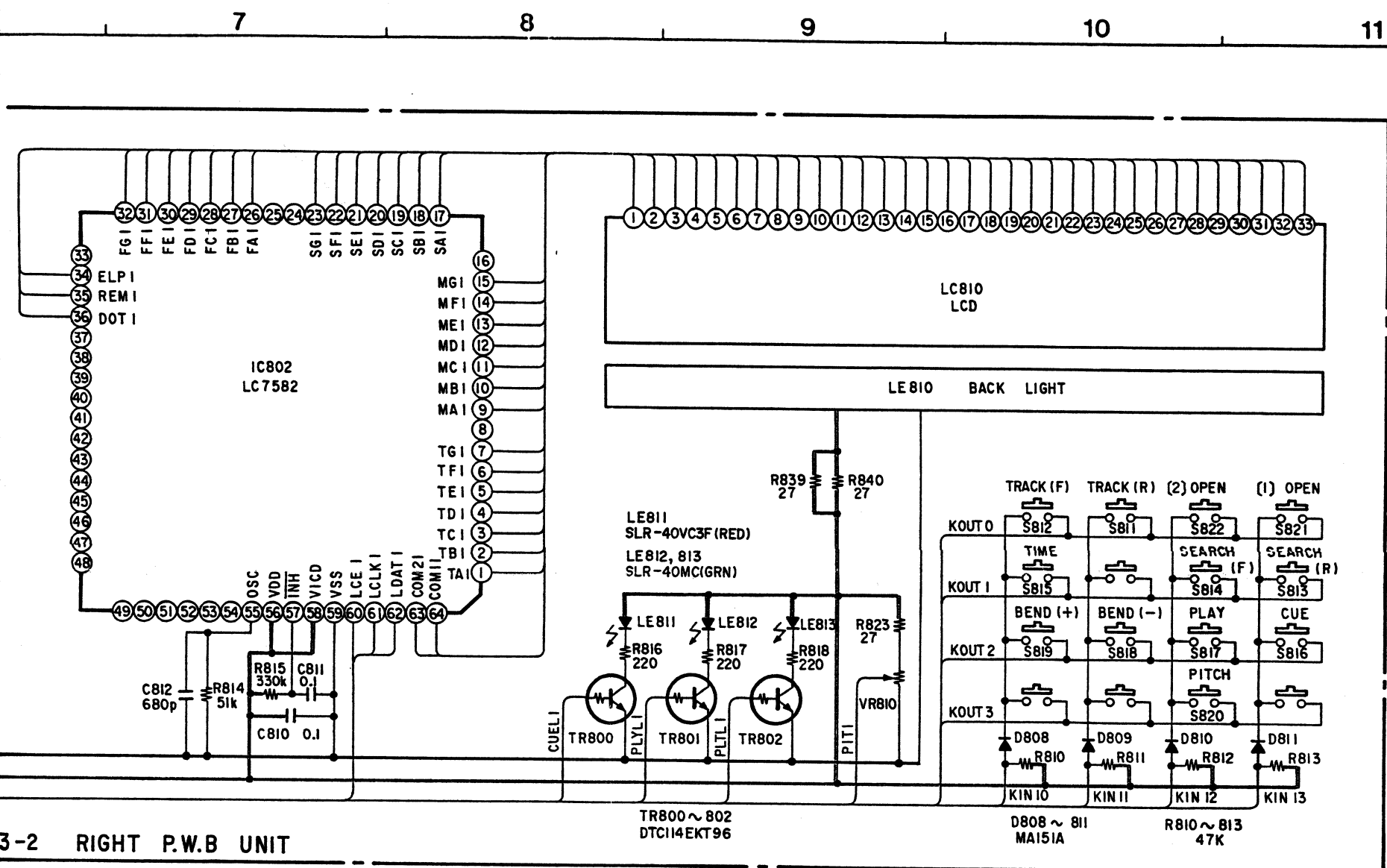
NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:
Parts marked with this symbol Δ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a k
the leakage current exceeds 0.5 milliamps, or if the resistance from chassis
defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and com

NOTES:
Circuit and parts are subject to change without prior notice.



WARNING:
Parts marked with this symbol Δ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

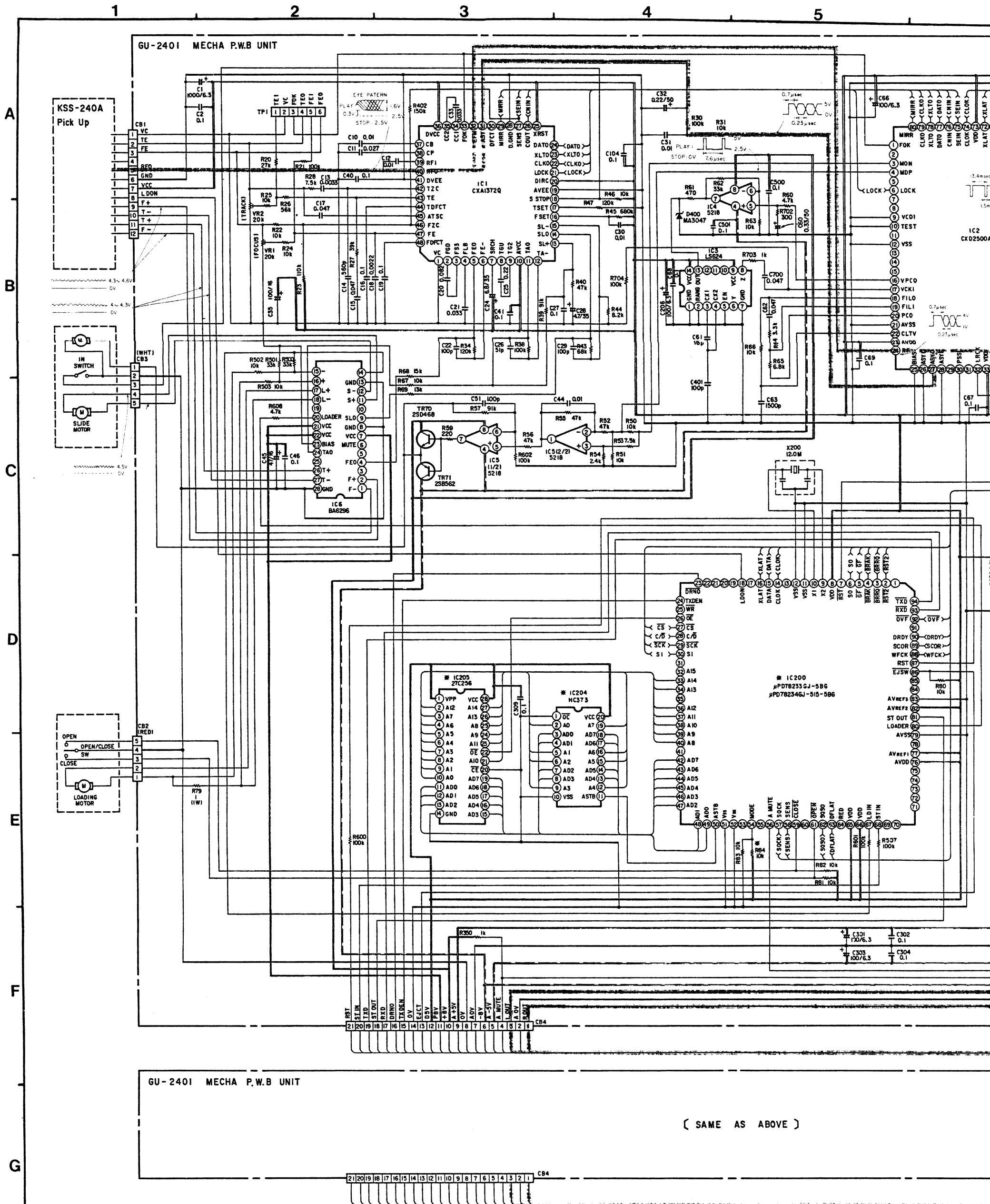
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES:
Circuit and parts are subject to change without prior notice.

OHM. k=1,000 OHM, M=1,000,000 OHM
MICRO FARAD. P=MICRO-MICRO FARAD
ARE MEASURED AT NO SIGNAL INPUT CONDITION.
SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

SCHEMATIC DIAGRAM GU-2401 MECHA P.W.B. UNIT/GU-2402 MAIN P.W.B. UNIT



GU-2401 MECHA P.W.B. UNIT

(SAME AS ABOVE)

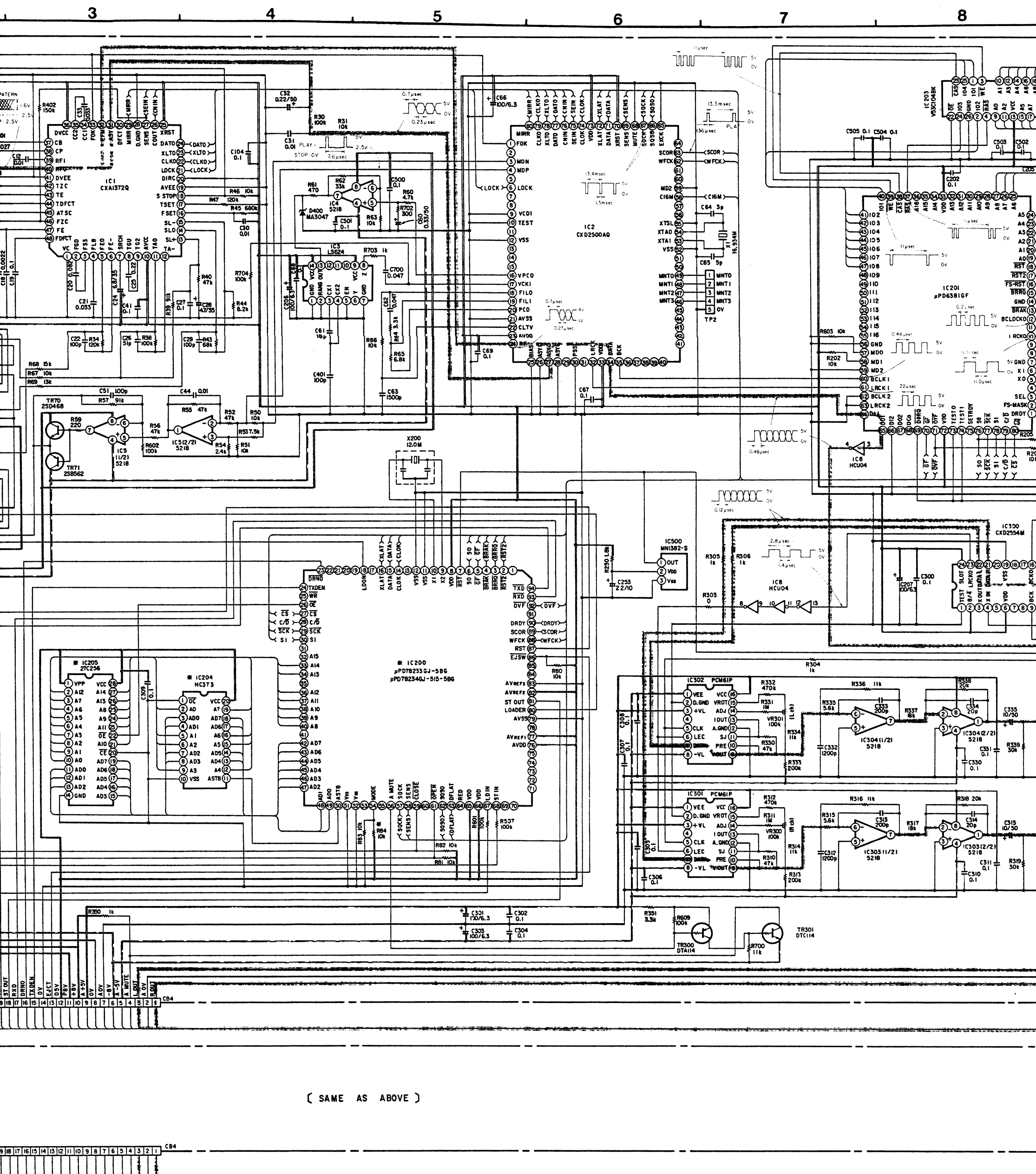
NOTES
ALL RESISTANCE VALUES IN OHM. K=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power co defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES:
Circuit and parts are subject to change without prior notice.



WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

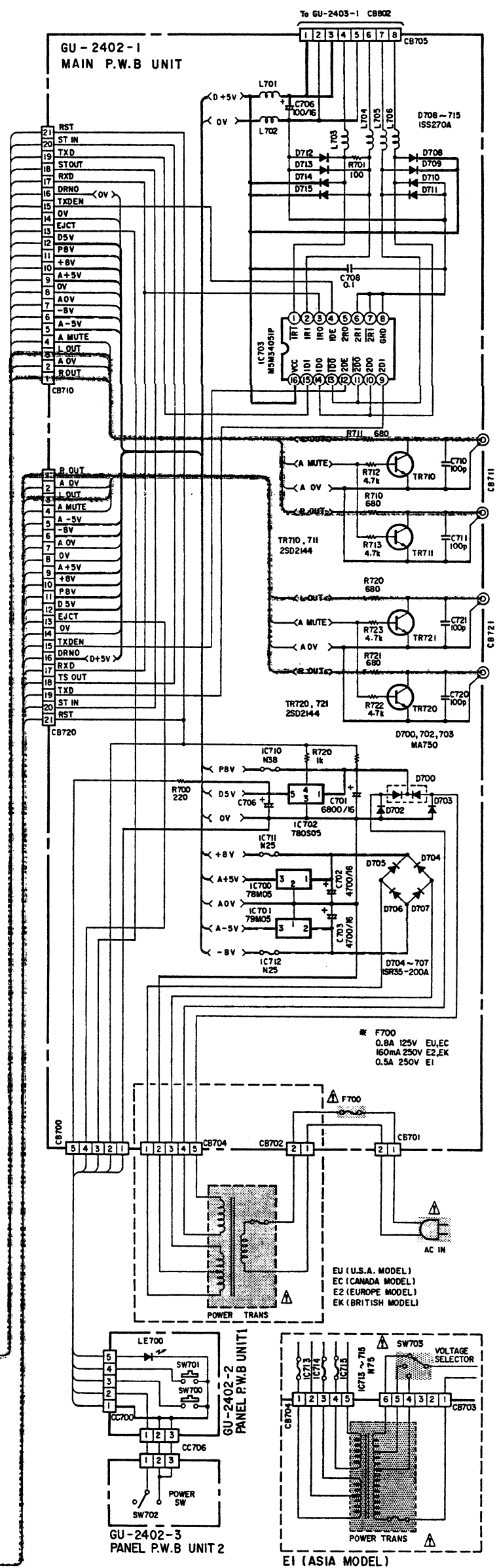
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamperes, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES:
Circuit and parts are subject to change without prior notice.

* For serial numbers of U.S.A. Model after No. 6
No. 301, of Canada Model after No. 131, and of
CPU masking and makes IC204, IC205, R84 u

M=1,000,000 OHM
MICRO-MICRO FARAD
AT NO SIGNAL INPUT CONDITION.
WITHOUT PRIOR NOTICE.

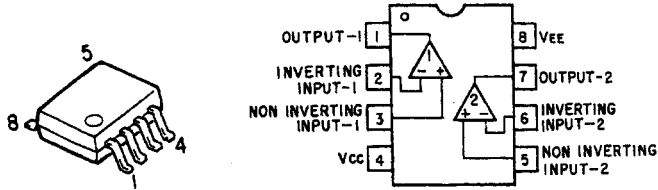


a line to chassis resistance check. If
cord is less than 240 kohms, the unit is

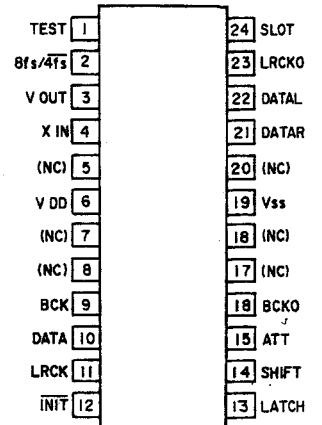
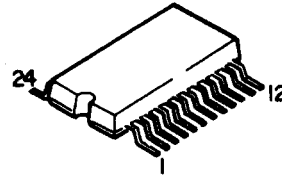
SEMICONDUCTORS

● IC'S

BA15218F (IC004,005,303,304)

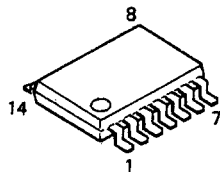


CXD2551MT (IC300)

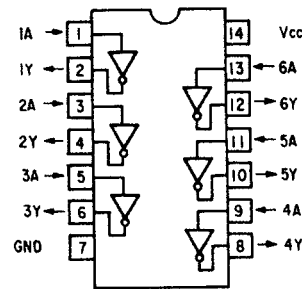


TC74HCU04AF (IC008)

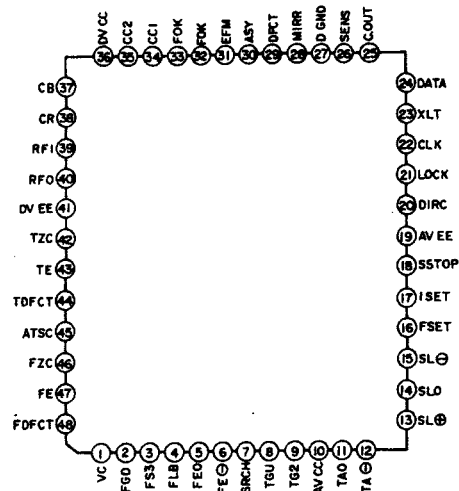
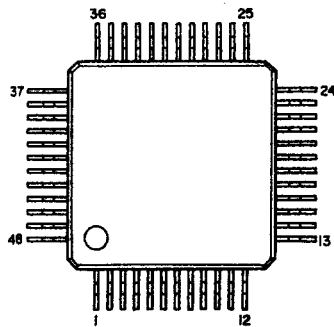
SN74LS624NSR (IC003)



TC74HCU04AF

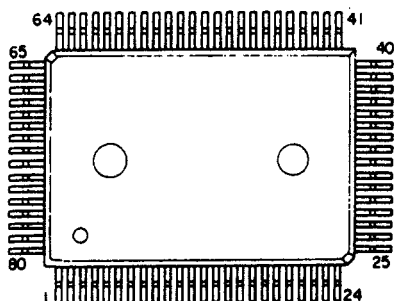


CXA1372Q (IC001)

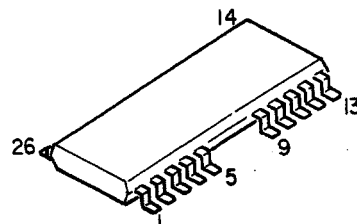


CXD2500AQ (IC002)

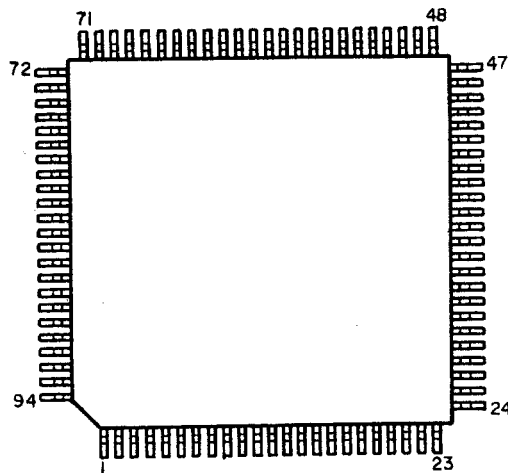
UPD6381GF (IC201)



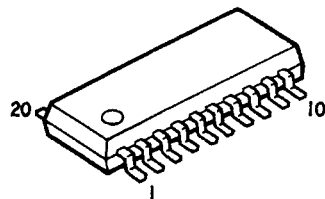
V53C104BK80 (IC203)



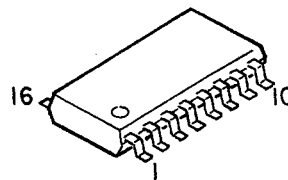
UPD78233GJ-5BG (IC200,800)



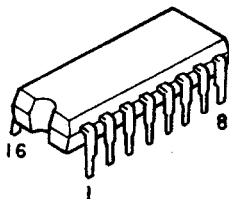
HD74HC373FP-TL (IC204,804)



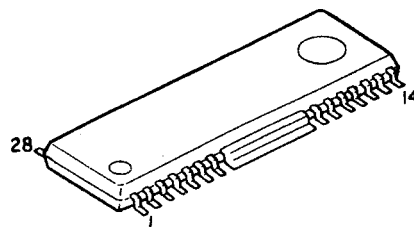
M5M34051FP (IC801)



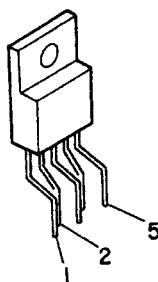
PCM61P-L (IC301,302)
M5M34051P (IC703)



BA6296 FP-T1 (IC006)

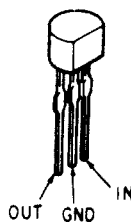


L780S05 (IC702)



1. Vin
2. NC
3. GND
4. STB
5. Vout

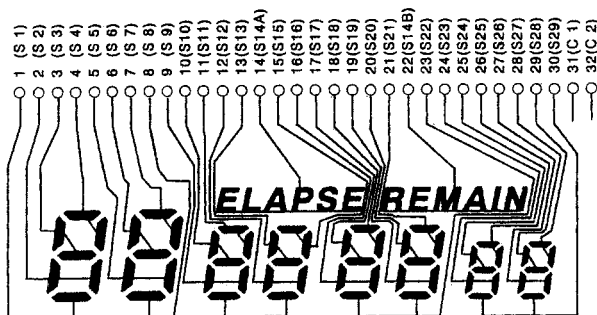
NJM78M05FA (IC700)
NJM79M05FA (IC701)



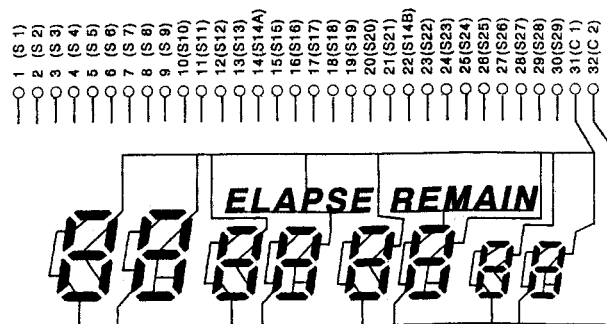
IC PROTECTOR
ICP-N38T (IC710)
ICP-N25T (IC711,712)



Segment

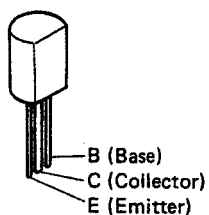


Common

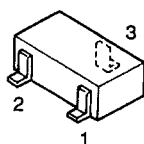


● TRANSISTORS

2SB562(C) (TR073)
2SD468(C) (TR072)

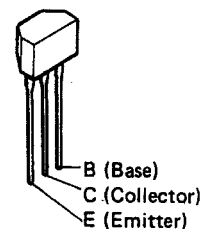


DTC114EK96
(TR300,301)
(TR800~805)



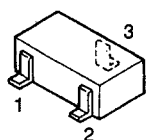
1: GND/Emitter
2: In/Base
3: Out/Collector

2SD2144STPU
(TR710, 720
720,721)

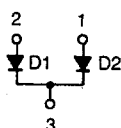


● DIODES

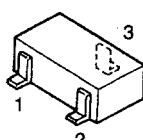
MA151A (D804 ~ 815)
MA151WA (D802,803)



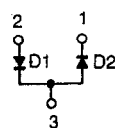
1: Anode
2: Cathode
3: Anode / Cathode



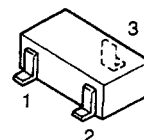
MA151WK
(D800,801)



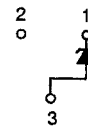
1: Anode
2: Cathode
3: Anode / Cathode



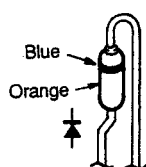
MA3047-TX (D400)



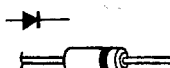
1: Anode
2: NC
3: Cathode



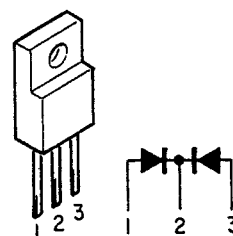
1SR35-200A (D704~707)



1SS270A TE (D708~ 715)

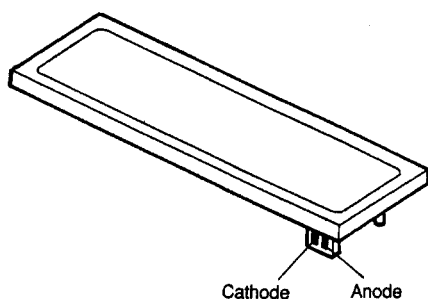


MA750 (D700,702,703)



● LED

BACK LIGHT (LE810,830)



SLR-40VC3F (RED) (LE811,831)
SLR-40MC3F (GRN) (LE812,813,832,833)

